THE

CALCUTTA JOURNAL

OF

MEDICINE:

A MONTHLY RECORD OF THE MEDICAL AND AUXILIARY SCIENCES.

> That alone is the right medicine which can remove disease:
> He alone is the true physician who can restore health.
>
> *Charaka Sanhitá.*

EDITED BY

MAHENDRA LA'L SIRCA'R, M.D., C.I.E.

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HOMŒOPATHY IN CALCUTTA.

A REVIEW.

A year has passed away, and a new one has come in. It is natural that we should take a review of the position of homœopathy in Calcutta. During the last year we suffered a great loss on account of the death of Dr. Mahendra Lal Sircar. He was a bulwark in the citadel of homœopathy in India. The present advancement of homœopathy is mostly due to his earnest endeavours. The arduous labours of Babu Rajinder Dutt and Pundit Iswar Chandra Vidyasagar created the first kingdom. It remained for Dr. Sircar to extend the domain and impart an internal strength which could not have been done by the amateur founders. Dr. Sircar first fought with the aggresive enemies of homœopathy. Having been successful in that attempt, he was trying for the consolidation and development of homœopathy. There were numerous factions before his time. By his earnest effort he united a large number of the regular practitioners, the irregulars having been kept apart.

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During his early years he tried to establish a homœopathic hospital. The bad efforts of some of the irregulars deterred the fruition of his project. Having failed in his attempt in that direction, he constructed the fabric of another organisation known as the Indian Association for the Cultivation of Science. We do not know of another man after Dr. Sircar who tried to advance the cause of homœopathy. There were many during his time who practised homœopathy for their own benefit. There are now a phalanx who profit by the teachings of the New School of Medicine. The earnest question is, what have we done for homœopathy? It cannot be said that our united effort is unequal to the task of internal consolidation. The external expansion will advance notwithstanding all opposition. Our home-organisation has become a problem of utmost necessity. It is sure that we cannot allow so many divisions and diversions. United we stand; divided we fall. The darkness of antipathy will disappear with the communion of our interest. The Hahnemann Society exists in name. The annual meeting on the 10th April to commemorate the birth of Hahnemann has disappeared. The monthly meetings are now quite out of place. There were a few during the time of Dr. Sircar. Apathy created the mischief of abolishing their existence. If we are earnest we can revive that society or we can create a new one to the need of our situation. After all, can it not be said that we are not equal to the present advancement of homœopathy in forming societies, associations, hospitals, or out-door dispensaries, on established basis? There are a few unorganised charitable dispensaries, the out-come of private munificence. Their perpetuity can not be ensured. The open truth is, that we have done little for homœopathy. Our needs are of a multifarious character. We have no Specialists. It often happens that we are obliged to depend on the surgical skill of an old school practitioner. Accoucheurs among us are wanting. The late Dr. Bepin Behary Maitra was a Goodeve scholar and had the preliminary training in midwifery practice. His subsequent conversion to homœopathy ruined his prospect in that department of medical training.

Ophthalmic surgeon, we have none. Then, we are simply a class of medical practitioners following the profession of physician. Can it be said, that these are not our necessities? If they are not the requisite ions for the molecular combination of medical practice, we do not know what will tend to their synthetic formation. Homœopathy is extending so far as the practice of physician goes. The bulk of the Indian nation is yet ignorant that we are as much physicians as surgeons or accoucheurs. It remains unknown to them that the best laurels of homœopathy have been gained in the field of surgery. The combined skill of mechanical dexterity and the requisite administration of medicine in homœopathy favour the healing art to a greater degree than what can be done by the old school. In the businees of an accoucheur the frequent use of forceps by the allopathic practitioners creates a disaster which is unknown to homœopaths. Not only septic absorption is made possible by the unclean instruments, being devoid of the principle of asepsis, but also ruptures of all conceivable descriptions follow their unmethodical use. Homœopathy should gain an advantage having so many medicines at its command, that it makes the general use of forceps an almost unnecessary application. The post-partum haemorrhage comes under the control of homœopathic medicines avoiding the use of unnecessary surgical procedures. In the field of ophthalmic practice homœopathy can avoid many operations. Thus, we are deterred from showing our successful results in homœopathic practice on account of the ignorance of the Indian people. It is not their fault that they do not want them. We can not show the preference of our system. There is demand which we cannot doubt. The market has been created. It is our fault that we cannot avail of the opportunity which will create an appreciation of our method in the market. Our combined effort may solve these difficult problems so as to raise ourselves to the requisite standard of an organised class of medical practitioners. It should be known that these different organisations create a nation. We work without any methodical procedure.

It may seem irrelevant that we want an Indian Homœopathic Pharmacopœa. If we carefully look into the different homœopathic pharmaceutical directions, it will come to us as a necessary conclusion that we should have one directing our use. When the British Homœopathic Pharmacopœa includes not only their drugs but also those from foreign countries, it seems that we are not in want of a precedent in that respect. Our grounds are stronger than those of other nations, in consideration of the herbal stock of India. Not only the drugs used in homœopathy can be found in India but also we have a multitude which can benefit us to a great extent. If the British Homœopathic Pharmacopœa can use Bryonia dioica instead of Bryonia alba for national exigency, it is a safe sign to follow in supplying other equivalents from India. The worst that can be said against such use is that the new equivalents want provings. If we not be wanting in our energy, provings are not incalculable difficulties in the way of our progress. It is a ridiculous business to get tinctures of Nux vomica or Aconitum napellus from England when India can supply them plentifully. Further, Nux vomica and Naja are taken from India by the foreign druggists to be sold in the Indian market after their preparation. The preparation of tinctures being so simple we are not in need of resorting to foreign markets. Our home supply is abundant. We have prepared many tinctures of homœopathic pharmacopœa from Indian plants and found them to be as good as those supplied from elsewhere. Our tincture Nux vomica proves to be far better than that can be supplied by the foreign market. Indeed, it is a fact that no good tincture can be prepared in a shorter time than a month. This has often been verified. The metals are common properties of all nations. When India is showing progress in all directions, it has become urgent that we should move with the innovation of new ideas and put them in practice. The preparation of our tinctures by ourselves will prove an immense gain. We have the requisite qualification for those preparations. The actual application of our energy is wanted.

Having all these views, are we to remain dormant in view of the necessities which confront us in our daily life? The hope is, that all our regular practitioners will be united in one solid re-unification like the regelation of ice. We hope our stored up energies, will be available in time of need. The only thing is that we should be conscious of their existence. We cannot frivolously waste our time by creating petty factions. Our diversions are many. They have ruined our future prospects. The time has come when our appeal will gain the object so earnestly solicited. We can all follow a homœopathic regular who has attained his seniority in the profession. It will not be our degradation, but it will redound to our honour that we can create a consolidated empire of homœopathy in India.

SANDOW *VS.* LETTL.

Eugene Sandow is a powerful muscular man. He says he has made a study of the development of muscles. He weighs four and half maunds, or about three hundred and sixty pounds. Some of our Indian athletes have weighed more than that and came to eight maunds. The famous Buta, the Panjabee athlete was one of them. We always entertained a doubt whether the hypertrophy of the muscles is necessary for our actual power. Hypertrophy of muscles even kept up by exercise may lead to atrophy. But one fact is certain. That unusual and precocious development forces a short existence. Almost all the *Pahlwans* or athletes could not prolong their life after fifty. The hypertrophy of the heart which follows the development of muscles is a dangerous consequence. Soldiers who are accustomed to quick marches often get hypertrophy of the heart. This hypertrophy leads to short existence. In these days of militarism quick marches are necessary for rapid mobilisation of troops. The necessary evil can not be avoided. But we can do without the abnormal hypertrophy which brings on short life. If prolonged existence be the scientific problem and the highest aim of human existence, then the attempt to shorten life for no desirable end must be condemned. Modern militarism does not require that unusual development of muscles. The strength which can keep up the respectability of self-defence is necessary. The scientific instruments and appurtenances of human slaughter are the modern study of war. The out-numbering skill is a useful manifestation. All these methods do not require men to have unusual muscular development. The average standard is the capability to fight and not abnormal hypertrophy of muscles. For these reasons we cannot but condemn the athletic shows. The practices which can keep up the strength for usual activity are required. The different kinds of nutritious foods and exercises as walking which can maintain the power of being serviceable in time of need are the necessities.

The doubtful issue with regard to the unusual hypertrophy of muscles is the unnatural depevelopment of the heart. As a rule, the athletes have long breaths. The difficulty with the enlargement of the heart which makes short breath, is obviated by the practice of taking long breaths and retaining them. Apart from other consequences of athletic games, the practice of long breath in the long run falls short. It is generally observed that rheumatism and other evils necessarily follow. These diseases again have a deleterious effect on the heart. Taking into consideration all the results of those abnormal exercises which lead to hypertrophy of muscles including that of the heart, it should be said that many of the so-called manly exercises should be avoided on the ground that they shorten life.

The latest show in the London Hippodrome was the famous motor-stopper Herr Georg Lettl. He has a muscular development which may be rivalled by many, possessing nothing unusual. This little Bavarian is 37 years of age, has 5ft. 1in. height, and scaling 10 stone. The following interesting account of his feats are taken from the *Illustrated Mail*, November 12, 1904: "He is thirty-seven years of age, and belongs to a Lowland Bavarian family which has been engaged as millers for many generations.

Until a month ago he really did not know the extent of his own strength, and even now is at a loss to account for it. Herr Lettl when at work has always been able to carry three times the weight of sacks any other man in the same employ could.

One day somebody in his native town, seeing him carrying an enormous weight with the greatest of ease, said: "How much can you carry, Lettl?"

Out of curiosity it was proposed to submit him to a test. Accordingly he was loaded with flour sacks totalling the enormous weight of 20,000lb. Several other experiments were next made. With the greatest ease Herr Lettl picked up a 600lb. sack of flour, which was on the floor, placed it on his shoulder, and walked off with it.

Details of this little exhibition were brought to the notice of some German theatrical agents. They submitted the little man to some very severe tests, and ultimately promised to make his fortune if he could accomplish some feats they had thought of.

Two 16 h.p. motor-cars were procured and placed back to back. Then the drivers started them a little, and Herr Lettl took a good grip of a rope in each hand secured to the rear of each car.

The drivers started the cars off at full speed in opposite directions, but were unable to proceed more than an inch or so on their way, for Herr Lettl held them in a veritable grip of iron. In order to make the triumph of man over machine more complete the miller next proceeded, despite their mechanical struggles, to drag both cars in whichever way he pleased.

But the German agents were not entirely satisfied. They next requisitioned a 30 h.p. car, and starting it backwards at full speed, challenged Herr Lettl to stop it by placing his back against it. Not at all dismayed by the task set him the Bavarian Lowlander ran with the car, gradually got in front of it, and in a few minutes had brought it to a standstill.

Then he was not satisfied. Exerting all his strength he pushed the huge car back despite its struggles to go forward.

A last experiment was made. Herr Lettl encircled his body with a strap and attached it to a 16 h.p. motor-car. The engines were set going at the rate of 2000 revolutions a minute, which means a speed of thirty-five miles an hour.

With the aid of a stout rope he pulled the motor-car in the opposite direction to that in which it was being driven, and, when the engines were suddenly reversed, was quite equal to the occasion and brought the car to a standstill.

One cannot help thinking that such a man would be an invaluable acquisition to the Kingston Police Force, who hold the world's record for the number of motorists that have been called upon to stand and deliver—their names and addresses. As it is, all London may see this marvellous little non-muscular strong man for themselves, as his services have been secured for an indefinite period by the London Hippodrome management on the payment of the princely salary of £250 a week.

Herr Lettl was good enough to give a private display in order to convince our representative that there was no trickery in the business. We were authorised to state, in fact, that all those who doubt—and their name is Legion—are cordially invited to bring their own motor-cars and drivers into the arena of the Cranbourn-street establishment and pit them against the spare frame of the Bavarian miller.

The captain of the German brig Theodora Augusta, of Kiel, hearing of Herr Lettl's prodigious strength, challenged him to throw a 920lb. anchor overboard that lay upon his decks. Lettl did so to the worthy skipper's chagrin and disgust, for he has not recovered that anchor yet.

Herr Lettl proves the truth of this anecdote by lifting up an anchor with both hands at the Hippodrome. The anchor weighs 850lb., and the muscleless miller seems to lift it just as easily when four men are sitting upon it, and it weighs 1500lb.

Another favourite feat of Herr Lettl's is to hang from a horizontal bar by one finger, and with the disengaged hand lift a 200lb. weight from the floor.

Anyhow, weight-lifting apart, Lettl will take bets up to £100 that he can hold any motor-car up to 100 horse-power."

COMMON DISEASES AND THEIR TREATMENT.

VIII.

(Continued from last Number, p. 495.)

As to the fact of the production of inflammation, we have writers of the old school in profusion. Sir Thomas Watson says, "When Mercury is gradually introduced into the human body in small quantities, it produces sooner or later very remarkable effects. It *causes* inflammation. Perhaps it may be for that reason that the professors of homœopathy prescribe 'Mercurius' so often." In Pereira's Materia Medica abridged by Bentley and Redwood, it is said, thus: "*Inflammation.*—Of late years various forms of inflammation have been most successfully combated by the use of mercury. Hence this mineral is termed *antiphlogistic.* It is principally valuable in adhesive inflammation, to stop, control or prevent the effusion of coagulable lymph. On the other hand, it may prove injurious in erythematous, scrofulous, malignant, and gangrenous inflammation, as well as in inflammation accompanied with debility or great irritability of the nervous system. It is not equally serviceable in all inflammations. *The nature of the tissue, the structure of the organ affected,* and the *quality* or *kind* of inflammation, are points of considerable importance as affecting its use." This view led to the use of mercury in inflammations of membranous tissues as in meningitis, pleuritis, pericardites, peritonites, croup, diphtheria, iritis, and synovitis. Following these directions Hughes says: "It is in adhesive inflammations of serous membranes, in membranous croup and exudative iritis, that it has been given: it is its physiological effect that has been desired, and this has been induced accordingly. It has been regarded as contra-indicated in mucous and parenchymatous inflammations, and where the tendency has been to ulceration and suppuration. These *contras*, however, are our *pros.* We cannot claim for homœopathy the ancient antiphlogistic employment of Mercury; but we find great use for it in the treatment of inflammations where we desire to check suppuration when impending, and heal ulceration when extending."

There is difference, with this observation according to our clinical experience. Our view is that mercury is not only homœopathic to those inflammations of the membranous tissues as cited by Pereira, but it is useful to all kinds of inflammations of subacute nature before suppuration. Mercury can prevent impending suppuration is a fact admitted by many practitioners. The debatable question is, whether it can check the further progress of suppuration when it has taken place. I am disposed to believe that mercury can do so when the suppurative process is very slight, facilitating the absorption of the exudation, and forming the suppurated material into a caseous mass. It has this similarity with Hepar, with the difference that Hepar acts only when suppurative process has ensued, whereas Mercurius has the power to obstruct an inflammation and causing its resolution from the first stage of inflammation to the first beginning of suppuration. It is an admitted fact that we have in Merc. a potent anti-inflammatory medicine, next to Aco. and Bell.

Mercurins vivus or Hydrargyrum can be prepared in two forms, either in trituration or by boiling quick silver in water for half an hour. The first form is preferred for the uniformity of the preparation and the second is only an oxidation in water. The absorption of mercury by continual rubbing with sugar milk is also an oxidation but the full ingestion of the quantity of mercury is ensured. In the process of oxidation in water or the rough method of decoction, there is partial oxidation and the quantity of mercury thus oxidised is small in proportion to the triturated form. So far for the preparations. As to the difference between Merc. sol. and Merc. viv. it has been said that Merc. viv. is a stronger preparation of the two.

With regard to the pathogenesis of the two medicines Hughes remarks :" Hahnemann experimented mainly with his own black oxide,—in substantial doses, Noack and Trinks say. In the last edition of the first volume of the Reine Arzneimittellehre, 1,264 symptoms are credited to it, of which nearly half are his own, the rest being furnished by eight associates. Dr. Allen does little more than reproduce this proving; but he gives an entirely new and most valuable one of Mercurius vivus, chiefly made up of observations on workmen and others exposed to the emanations of the metal, and containing 840 symptoms." For this differentiation we are thankful to Dr. Allen. But it should be said, that actual provings are necessary to supplement the symptoms of Merc. viv. recorded by Dr. Allen.

Allen in his Encyclopedia of Pure Materia Medica has the following for Mercurius vivus: *Emaciation;* pale cachectic and scrofulous; the children of the workers are very commonly affected by scrofula, rachitis, and tuberculosis; chlorosis, ammenorhœa, palpitation, weakness, loss of appetite; skin of the face and mucus membrane pale, white like a corpse, eyes watery, pulse small, rapid, great thirst, palpitation, dyspnœa, pains in the head and stomach, oedema of the lower extremities, general weakness, depressed mood, blowing sound in the carotids, breath and whole body smelled foul, *a universal uneasiness of body so that he could not remain one moment in the same posture;* painfulness of the affected parts; *bonepains;* pain in limbs and loins.

Though the poisoning symptoms of Merc. viv. do not exactly present any result which may be said to be due to inflammation, yet the general study of the drug from the old school assist us in forming an idea that it is useful in inflammation. Our clinical experience is also in that direction. Several cases of inflammations of all kinds have yielded to its influence. We have often observed that illiac and psoas abscesses have been dispersed by the power of the medicine. Inflammations of muscular structure tending to sub-acute type can be treated successfully with it. It may be said that we have experience of the curability of this medicine in inflammations. These remarks are applicable to Merc. viv. and Merc. sol.

A noticeable fact from Hoyne is the following: "Enteritis acute or chronic when pus is formed." Allowing the application of the medicine on the same view as to the formation of pus in other inflammations, it may be said that the observation of Hoyne is not strictly correct. The influence of Mercurius sol. and viv.

extends from the inflammatory stage to the period of the first commencement of suppuration. Upon these facts, the consideration of the application of the two mercurial preparations should be based.

A few words are necessary with regard to the wellknown Kaviraji preparation of mercury and gold known as *Makuradhwaja.* It is a mixture of several metals and non-metals, of the usual type of the ancient system. The rationale of its action is inexplicable, so far as the individual action of each of its constituents. It contains 1. gold two parts, 2. Lead one part; 3. Pearl one part; 4. Iron one part; 5. Nutmeg one part; 6. Bark of Nutmeg tree one part; 7. silver one part; 8. Refined brass one part, 9. *Rasasindur* (a preparation of mercury and sulphur) one part; 10. Coral one part; 11. Musk one part; 12. Camphor one part; 13. Mica one part; 14. *Swarna sindur* (a preparation of gold mercury and sulphur) four parts. They are oxidised in a crucible. The reason of the mention of this compound is that some of the homœopathic practitioners use it, following the Kaviraji practice, in chronic inflammations, of all kinds, in doses of one or two grains, with some success. It would be better to have a preparation of Mercury and Gold instead of so many minerals and their compounds. The preponderating action comes from the last mentioned metals.

Mezereum has the following symptoms: Flesh dried and shrivelled; *hot jerking on various parts;* tearing in different parts when sitting; boring in knees, tibiae, wrists, and behind ears, all day when walking and sitting; *general sick feeling;* swollen feeling in affected parts on touch; *sensitiveness to cold air* (Ars., Kali., Dulc., Mosch., Nux. v., Rhus.); restlessness (Ars., Rhus. t.); periosteum of jaw and of long bones become the seat of an inflammatory process which is followed by its legitimate results; burning, darting sensation in muscles like fire darting through them; *jerking and quivering of muscles;* joints feel bruised and weary, as if they would give away; contusive pain, and heaviness in all limbs; pain in glands; abscesses of fibrous parts or tendons; predominance of sufferings on one side of body; *aggravation in evening, and on touching affected parts; sensitiveness in washing with cold water in morning; stiff pain in nape and external cervical muscles* (Dulc); *pain in muscles of scapulae like tension and as if swollen, making motion difficult*; pulsating pain near middle of spine; drawing pain in muscles of lumbar region; *drawing in long bones, with tearing in them and with chilliness, shivering and sensitiveness to cold air*; heaviness and bruised sensation, as in suppressed catarrh; *sore sensation in right axilla; tearing in upper extremities as if it would be torn asunder*; sprained pain where scapula unites with clavicle on moving arm; bruised pain in upper arms; distension of the veins of hands; swelling with bruised pain in metacarpal bones; *jerking pain in hip joint extending to knee*; sprained pain in trochanter major when walking; *pain in bones of tibia and legs*; pain in muscles of leg; *sudden sprained pain below nates when walking; pain in tibia as if beaten or as if periosteum would be torn off after midnight, disturbing sleep, with general chill and thirst; burning pain in tibia* (zinc.); *sacral pains (coccyx tender and sore, from a fall)*; pain in hip the leg is shortened; hard swelling of calves of legs; violent pains in bones of feet.

With this comprehensive list of inflammatory symptoms of bones and muscles, it should be said that Mezereum is a least tried medicine. It has cured periosteal inflammation of bones. In other kinds of inflammations, particularly of muscles, it remains an untried remedy. Its allies are Arn., Merc., Rhus. t., and Phyto. in this sphere. It is an analogue as well as antidote of Mercurius. Clarke says: "*Mezereum* is the vegetable analogue of, and one of the most important antidotes to, *Mercurius. Merc.* and *Mez.* antidote one another." The province of the application of Mezereum is of various character. From deep seated inflammations of fibrous tissues, affecting even bones to superficial inflammations are under its influence. Abscesses of fibrous parts and tendons require its use. It is not the suppuration but the inflammatory pain can be subsided by its application. The inflammation does not seem to be of acute nature, but has a sub-acute or chronic course. Wounds and sprains of bones, joints and muscles should have its use. The following case is recorded by Clarke: "The fastenings of a hammock broke, and a lady on it fell, striking the sacrum and coccyx on the stump of a tree. She suffered excruciating pain. *Arn.* was applied locally. In a few weeks she came home, and the coccyx was still so tender she could not sit—only lie or stand. *Arn.* internally and externally for two weeks had no influence. *Mez.* 2 cured in five days. (Oehme)." This case suggests the use of Mez. in wounds after failure of Arn. It may, also, be said that in sub-acute or chronic inflammatory swellings where Hepar, Merc., and Rhus. have failed Mezereum should be tried. Mez. has restlessness like Merc. and Zinc.

Millefolium has pain in tendo-Achilles as from a blow or sprain; effects of over-lifting or over-exertion; worse in evening and night; better during days; bruises; bleeding wounds; bad effects from a fall (from a height) and sprains: bruised sensation in chest; suppurating pain as if bruised beneath the thumbnail. As to the antiquity of the drug, Clarke writes thus: "Yarrow was named *Achillea* by Linnaeus because the plant is mentioned in the Iliad as having been used by Achilles, on the instruction of Chiron, to heal the wounds of his soldiers. The knowledge of the vulnery powers of *Mill.* is thus of great antiquity." Brewer in his Dictionary of Phrase and Fable says: "The Yarrow, called by the French the *herbe aux charpentiers—i. e.*, carpenter's wort, because it was supposed to heal wounds made by carpenters' tools. Called Achillea from Achilles, who was taught the uses and virtues of plants by Chiron the centaur. The tale is, that when the Greeks invaded Troy, Telephus, a son-in-law of King Priam, attempted to stop their landing; but Bacchus caused him to stumble over a vine, and, when he had fallen, Achilles wounded him with a spear. The young Trojan was told by an oracle that 'Achilles (meaning milfoil or yarrow) would cure the wound;' but, instead of seeking the plant, he applied to the Grecian chief, and promised to conduct

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the host to Troy if he would cure the wound. Achilles consented to do so, scraped some rust from his spear, and from the filings rose the plant milfoil, which being applied to the wound, had the desired effect." The power of healing wounds is said to be due to an etherial oil, and a bitter, resinous matter in its leaves. It is considered to be highly astringent. The Scotch Highlanders make it into an ointment, and use it for healing wounds. The inevitable conclusion is that Milfoil is curative in deep punctured wounds, like Ledum. The difference between Ledum and Millefolium is, that the former can arrest the nervous sensitiveness of punctured wounds even terminating in tetanus, while the latter has no such power; it is efficacious in bleeding wounds. The story of the penetration of spear and the healing of that wound as well as the Scotch ointment for curing wounds prove that Milfoil should be tried in punctured as well as lacerated wounds, on failure of Arn., and Ledum. Clarke says, "*Mill.* is suited to all wounds which bleed profusely, sprains, and over-lifting." We are expected to observe the action of Mill. in the last two injuries, sprain and over-lifting. When the tendo-Achilles becomes painful from over exertion of the legs, as from running, lifting heavy weights, or being wounded some how or other, it would be reasonable to use Milfoil in that case.

(To be continued.)

REVIEW.

Essentials of Diseases of the Eye. By B. A. Norton, M. D., Professor of Ophthalmology in the New York Homœopathic Medical College; author of "Ophthalmic Diseases and Therapeutics" etc. 349 pages. Cloth, $1. 75 *net*, Postage 10 cents. Philadelphia. Boericke and Tafel. 1904.

We have several monographs on the diseases of the eye and other organs by the old school men. They are really master-pieces and do honor to their writers. But we are really sorry to find that there are not many good monographs in our new school literature. This shows the shallowness and unsoundness of our practitioners. Dr. Norton is a long-experienced specialist on the diseases of the eye and he has given to the world his master-piece "Ophthalmic diseases and Therapeutics" but a "demand has been made upon him for several years for a condensed work upon the eye which should exclude all theories, technical terms and phrases and which should give as consisely as possible the essential features of eye diseases together with their homœopathic treatment," and the present work is the outcome of that demand. It is good that general practitioners who have hardly any time to read larger works should be provided with such a book to refresh their memory at times, but it is a pity at the same time that the laity in general make undue use of such works. Without a knowledge of the anatomy and physiology and without perhaps the a b c of the medical science, they fancy by reading such books, they are competent enough to practice as well as a trained practitioner. Degradation has thus been brought on hom eopathy by practitioner like these, and the popular books feed the vanity of such practitioners. Hence we are much against popular treatises—treatises mainly written for the benefit of the author than for the good of the profession.

The present volume coming as it does from a master's hand contains everything that is required by a physician to know. From the examination of the eye, the use of the ophthalmoscope, the refraction and accommodation, to the diagnosis and treatment of the most obstinate diseases are to be found within its pages, and its usefulness has thus been enhanced. The author instead of giving a long list of medicines with indicated symptoms has given the names of a few medicines which his long experience has taught him to be of use. This is far better than a mere long list as it allows the practitioner to choose his own from the symptoms observed in their patients.

In some portions of the treatment we do not entirely agree with the learned doctor, such as the use of iodoform, the boracic gauze and so forth. We have found in our practice that iodoform is objectionable in cases where there is no history of syphilis or mercurial taint. And even in such cases we do very seldom use iodoform and without any bad result. Boracic is much less injurious than iodoform and so it may be used with less danger to the patient. Of course our experience may be contrary to that of the author but we simply bring it to the notice of the public for trial.

We have great pleasure to recommend the book to the public and to the general practitioners who will derive immense benefit from it.

First Lessons in the Symptomatology of Leading Homœopathic Remedies. By H. R. Arndt, M.D. 271 pages cloth $1-25 *net.* Postage 5 cents. Philadelphia. Boericke and Tafel 1904.

This little book by Dr. Arndt is mainly intended for the freshman year and it has been excellently done. It contains about one hundred and thirty-three remedies and at the top of each remedy are noted the chief indications and "the sphere of usefulness in the sickroom." This is indeed a very valuable aid to the beginners who is not expected to find out, unless he reads his materia medica fully, the proper indications of each remedy. As it is intended only for the beginners we can not expect the fullness of a materia medica or the thoroughness of a good Repertory.

The "Regional Index of symptoms" will afford a greater facility towards the selection of medicines, but here too the symptoms given are the most prominent and so by no means the index is full or complete. On the whole it is a very good book for a beginner of Homœopathy, and by reading this the student should have a thirst created for larger and more voluminous works on materia medica, without the study of which the knowledge can never be increased.

EDITOR'S NOTES.

Consumption of Meat.

The *Journal* of the Royal Statistical Society for September (vol. lxvii., part iii.) contains the second and third reports of the committee appointed to inquire into the production and consumption of meat and dairy products in the United Kingdom, with remarks thereon by Mr. Rew, from which it appears that we are well ahead of other European nations in meat consumption (122 lb. per head as against Germany's 99 lb.), but appreciably behind our American cousins (150 lb. per head), and much less carnivorous than our Australian kinsmen (262 lb. per head). Mr. Thompson contributes a paper on local expenditure and indebtedness in England and Wales, and Mr. Adam a newly calculated life-table for Scotland.—*Nature*, November 3, 1904.

The Early Diagnosis of Phthisis.

GIULIO *(Gazz degli. Osped.*, July 17th, 1904*)* draws attention to the quality of the inspiration in the diagnosis of phthisis. For the early diagnosis, he says more value is to be attached to inspiration than to expiration, and he advises attention being paid to that alone. Inspiration, he says, gives data, direct and precise, as to the condition of the alveolar canals and labuli, whilst expiration indicates more especially the state of the bronchial channels, and the early localizations of phthisis are in the alveoli; hence it is more likely that inspiration should give early evidence of disease than expiration. The chief modes in which it becomes pathologically modified are in the way of roughness, weakness, and interruption, and of these he lays most stress on the first. It is useful to remember that respiration is normally more marked in women, especially at the right apex, than in men; more marked in the erect than the prone position after meals than before; and in subjects who breathe badly one can sometimes get better breathing by telling them to breathe rapidly with the mouth closed. Interrupted respiration (cog-wheel) probably means impaired elasticity of the lung, and possibly weakening of external respiratory muscles.—*Brit. Med. Journ.*, November 5, 1904.

An Anti-alcohol League in Italy

Two years ago an active propaganda against alcoholism was set on foot in Italy. Some scattered efforts in that direction were made by Chierici at Turin in 1863, and by Bisocchi at Milan in 1882, but without success. The public was indifferent and the medical profession was somewhat sceptical. Since then the physical, moral, and social evils of alcoholism have been set forth by Colajanni, Zerboglio, and Pieraccini in works which have had a powerful influence in initiating a movement for the repression of alcoholism. Owing mainly to the persistent efforts of Giovanni Rochat, editor of the *Bene sociale*, published at Florence, who has given himself wholeheartedly to the work, the Italian Anti-alcohol League was founded. Already it has centres at Florence, Brescia, Venice, Bargamo, Udine, and Trieste. In July last the first Italian Congress against alcoholism was held at Venice, and in its proceedings several of the foremost Italian alienists, such as Drs. Morselli Seppilli, Amaldi, and Luzzatto, took part. A paper by Dr. Rochat entitled Abstinence or Temperance gave rise to an animated discussion, which resulted in a pronouncement by the Congress in favour of temperance as the practical policy to be adopted for the present.—*Brit. Med. Journ.*, November 12, 1904.

Lord Kelvin on Medical Science.

Speaking at St. George's Hospital Medical School on Friday last Lord Kelvin remarked:—The modern medical man must be a scientific man, and, what is more, he must be a philosopher. The fundamental studies of medicine are of a strictly materialistic kind, but they belong to a different world from the world which constitutes their main subject—the world of life. Let it not be imagined that any hocuspocus of electricity or viscous fluids will make a living cell. Splendid and interesting work has recently been done in what was formerly called organic chemistry, a great French chemist taking the lead. This is not the occasion for a lecture on the borderland between what is called organic and what is called inorganic; but it is interesting to know that materials belonging to the general class of foodstuffs such as sugar, and what might be also called a foodstuff, alcohol, can be made out of the chemical elements. But let not youthful minds be dazzled by the imaginings of the daily newspapers that because Berthelot and others have thus made foodstuffs they can make living things, or that there is any prospect of a process being found in any laboratory for making a living thing, whether the minutest germ of bacteriology or anything smaller or greater. There is an absolute distinction between crystals and cells. Anything that crystallises may be made by the chemist. Nothing approaching to the cell of a living creature has ever yet been made. The general result of an enormous amount of exceedingly intricate and thorough-going investigation by Huxley and Hooker and others of the present age, and by some of their predecessors in both the nineteenth and eighteenth centuries, is that no artificial process whatever can make living matter out of dead. This is vastly beyond the subject of the chemical laboratory, vastly beyond my own subject of physics or of electricity —beyond it in depth of scientific significance and in human interest. —*Nature*, November 3, 1904.

Therapeutic Application of Radium.

W. Scholtz (*Deut. Med. Woch.*, January 14th, 1904) finds that the physiological action of these rays are, to a certain extent, like that of Roentgen rays. He experimented with 25 mg. of radium, which was enclosed in a small vulcanite capsule, and covered by a thin mica sheet. The capsule was fastened on to the skin of the animals and human subjects by strips of plaster. After short application—that is, four or five minutes—as is the case with *x* rays, the hair of the part falls out after two or three weeks; after ten to fifteen minutes' application a fairly intense inflammation appears after the same period; after from twenty to thirty minutes' application an ulcerative process, affecting the subcutaneous connective tissue, sets in the third or fourth week. The difference between the action of the radium rays and that of the x rays is well marked in one direction. The visible effects of the latter are manifest after about fourteen days, and only rarely does one come across an erythema after twenty-four hours. This rare appearance, called by Holzknecht "the *Vorreaktion*" (preliminary reaction), is probably not due to the *x* rays themselves, but to some other factor, in connexion with old tubes. About twenty hours after a short application of radium one comes across a somewhat intense erythema. This disappears in the course of from four to six days, leaving a brownish pigmentation behind. Scholtz thinks that some use may be made of this erythema, from a therapeutic point of view. Another action of the radium rays is a bactericidal one. In this particular its action is much more powerful than that of x rays, but not so powerful as concentrated light from an iron electrode. In applying this to practice, he considered that it might prove of use in cellular new growths and in some infective processes. Sarcoma, carcinoma, and lupus of the skin appeared to him to deserve some investigation, but he thought that it would be necessary for the rays to be able to act on the deeper layers of the skin. He therefore experimented on the deep action of the rays, and found that after passing through a single rabbit's ear the rays lost about 50 per cent. of their activity, while after passing through twice the thickness from 70 to 75 per cent. was lost. He considers that this is encouraging. The hope that the therapeutic action may be directed toward destroying bacteria is scarcely great since it has been shown that after having placed a tube of radium within 2 mm. of a culture of typhoid bacilli on agar, three hours were required to sterilize the exposed portion of the plate; and it further appears that one must not expose the skin of a patient for longer than a quarter of an hour, lest ulceration and deep destruction of tissue take place. To overcome this difficulty, at all events in part, he thinks that one may be able to attain the same result by repeating short exposures many times. In this way he tried without success to deal with a furuncle. A case of lupus erythematodes was very slightly improved by a course of applications. With lupus vulgaris, he applied the radium rays until superficial excoriation took place. On this healing it appears as if the lupus had healed as well, but time is needed before definite conclusions can be drawn. He further tried it on two cases of skin carcinoma. In the first case, the growth took the form of a small ulcerated carcinoma of the cheek. The treatment was carried out until a marked amount of inflammation and some ulceration took place. The ulceration healed up slowly, leaving a smooth, soft, white scar in its place. The second case also appears to have been cured by the treatment. He considers that one has to gain much more experience yet with this substance before one can come to any definite conclusions.—*Brit. Med. Journ.*, October 15, 1904.

Therapeutic Bacterial Inoculation.

Although the majority of diseases are produced directly or indirectly by the invasion of microbes, it has come to be generally recognised that the soil in which they grow plays a cardinal part in determining the ultimate effect or fate of the microbe. The finding of a pathogenic microbe, and even the accessory disposing factors of a disease, are, however, after all only the beginnings of the greater problem which is the end and aim of all medical science, viz, the cure of the disease.

To attack the causal agent is manifestly a solution of the problem, and this was the method originally advocated by Lister, who may be regarded as the founder of the doctrine of the ætiological curative principle. Experience has, however, shown that the attempt to destroy by means of ordinary chemical poisons the microbes in the living body is fraught with danger, for long before the protoplasm of the microbe is destroyed the cells of the body are irreparably damaged. Internal antiseptic therapy is a thing of the past. To-day we must rely on the stimulus produced by bacteria in the body whereby the cells of the latter elaborate substances which are antagonistic to these same bacteria. These substances—germicidal in the widest sense of the word—differ considerably in their mode of action. Some neutralise the bacterial poisons, others produce a solution—a lysis—of the bacteria. In other cases, again, Metchnikoff claims that the destruction takes place by a kind of digestion in the interior of certain cells of which the chief representatives are the wandering corpuscles of the blood.

The inoculation of a living microbe for the purposes of prophylaxis dates from the time of Edward Jenner, whose work was widely extended by Pasteur. It is not even necessary to use living bacteria, dead bacteria being likewise capable of conferring immunity. In any case, with the exception of diphtheria antitoxin, previous attempts have aimed at prevention rather than cure. The authors of the papers before us are the first who have utilised bacterial inoculations as a curative agent. Dr. A. E. Wright, late professor in the Army Medical School, is already widely known for his method of the preventive inoculation against typhoid fever—a method which is admitted to have led to a marked diminution of this disease in the British Army. His most important work, however, has been the discovery of therapeutic inoculation. To introduce bacteria into an individual already infected with the same bacteria would at first sight appear to be a paradox, but the results obtained justify the means. By the invention of accurate methods of testing the effects produced in the body by the inoculations, Dr. Wright has been able to demonstrate that the elaboration of protective substances follows a general law, characterised at first by a negative phase and followed by a positive phase in which the protective substances in the blood are increased in quantity.

In a series of papers he has likewise shown that in so-called phagocytosis there is really a cooperation of the cells and fluids of the body, and that in the latter there are substances—opsonins—which in some way or other act upon the microbes and prepare them for subsequent destruction by the leucocytes. This opsonic type of immunity is applicable to a number of diseases, but the present researches show that the mere presence of these opsonins is not sufficient to induce immunity. They must be in the proper place and at the required time if they are to exert their action, and a great deal of art is required on the part of the inoculator to create the most advantageous conditions for his patient. The methods advocated by Prof. Wright are so new that it is difficult to foresee how far they may go, but the striking curative results obtained justify one in prophesying that the time is not so very far distant when the abilities of the physician will be judged by his successes as an immunisator, for it must not be imagined that immunisation consists in the subcutaneous inoculation of some mysterious bacterial fluid prepared in the laboratory. On the contrary, it is a complex process, and it is only with the help of accurate scientific measuring methods that the physician will be able to gauge whether he is helping or injuring his patient.—*Nature,* November 17, 1904.

CLINICAL RECORD.

Foreign.

A CASE OF SECALE CORNUTUM.

By Dr. Mossa, Stuttgart.

Translated for the Homœopathic Recorder from *Allg. Hom. Zeit.* August 11, 1904.

On the 20th of June, 1904, I was called in the forenoon to see a woman, forty years old, who in the preceding night, had been seized with a violent attack of vomiting and diarrhœa. The patient is a robust woman, otherwise healthy, but since she lives in a constant, violent feud with her husband, who is given up to drink, she is in a state of constant vexation and acute outbreaks of passion. I could not discover, in spite of careful inquiry, whether these mental emotions alone, tending to a bilious state, had now come to "a gastro-intestinal crisis," or whether other causes had contributed to the attack.

The patient had first vomited food, then mucus and at last bile. The diarrhœic discharges, which the patient stated were fifty in number during the night, were first fæcal and solid, then they had steadily become thinner and more colorless. When I saw the patient at 10 a. m. the main storm was over; the vomiting had ceased, but she still complained of *pressure in the stomach*; the stools also were less frequent, but one symptom tormented her unbearably: Very *painful cramps in the lower extremities;* these not only attacked *the muscles of the calves,* but *all the muscles of the lower part of the leg,* from the toes on up to the thigh. It was on account of this trouble that she sent for me.

Therapy. In view of the symptoms enumerated, *Secale cornutum* seemed to me the most suitable remedy. I prescribed it in the 3d dilution, the patient to take three drops every half hour; when improvement set in, the medicine was to be taken every three hours. The effect, as I found at my evening call, was indeed, brilliant. The stools were soon checked, as also the muscular cramps, and the woman could even get up now and then in the afternoon.

That *Secale cornutum* may produce such painful muscular cramps, not only in the calves, but also in the other muscles of the lower leg as also of the thighs, is shown by its pathogenesis. Clinical experience also has proved its homœopathic action in this direction. The remedy has proved itself useful in cases of sporadic and of Asiatic cholera, especially where the excessively copious stools are accompanied with violent, painful cramps of the feet and toes, as also in the muscles of the upper extremities; there is also found in it occasionally a convulsive pressure in the stomach, with flabby, wrinkled and cold skin; the stools being sometimes preceded by an urging to vomit, anguish, cramps in the calves, and grumbling in the abdomen. It is said to be particularly suitable with beer-drinkers. My patient, no doubt, also consumed her quart of beer a day, for she was born in Bavaria.—*Homœopathic Recorder*, Nov. 15, 1904.

CASE OF GALL-STONE COLIC.

Translated for the Homœopathic Recorder from *Allg. Hom. Zeit.*, August 11, 1904.

A woman aged fifty-three years, large, meagre and fair-haired, had been in good health, excepting some arthritic attacks. She had hæmorrhoids and utticaria, but no icterus up till now. But now, June 4, 1897, there was icterus extending generally, having lasted about two months. There was extreme debility and constipation all the more severe, as she had used purgatives without stint during these last two months. The colour of the urine was of mahogany color, the excrements like clay. Nausea, frequent pain in the left shoulder, which was aggravated during the painful hepatic attacks; she never had left any pain in the right shoulder.

An examination showed that the liver protruded by two finger's breadth beyond the lower line of the ribs. The gall bladder is very sensitive to the touch. The right kidney has sunk down; owing to the excessive emaciation and the relaxed, soft abdominal walls of the patient, it may be easily grasped.

Her domestic physician had diagnosed the ailment as gall-stone gravel and obstruction of the biliary passages, and this had been confirmed by an eminent professor. They considered her condition as precarious and maintained that since all medication so far had been ineffectual, a surgical operation was immediately required to save the patient's life. But the patient could not make up her mind to this and concluded first to give Homœopathy a trial.

Dr. Serrand who undertook her case found the patient's temperature to be in the morning 97·F. It seldom rose above 99· in the evening. Although the patient has much moral energy, she felt her strength utterly exhausted. She can hardly partake of a very mild milk diet, and of soup and light dishes made of flour. She is much troubled with flatulence, and has fits of weeping. The first day she received *Ignatia*, and for the purgatives I substituted simple lavements with boiled water. Her rational diet needed no change.

June 6. A painful attack, sensation of constriction of the larynx. *Belladonna.*

From the 6th to the 21st of June there was no particular change in the condition of the patient; but her painful ailments and her nervousness diminished.

June 21. Hepatic colic, a slight increase of temperature. Salivation. *Mercurius dulcis.*

June 22. The pain in the shoulder is worse. *Bryonia.*

June 25. A new attack of gall-stone colic; the jaundice which for several days had been less dark is now again more prominent. Temperature in the evening, 101· F. *Berberis.*

June 26. A copious discharge of sand, the stools begin to be slightly colored, the urine is less dark. The icterus is less pronounced some attacks of pain, but no vomiting.

June 26-30. A considerable quantity of sand was discharged and also some gritty grains in the stool, which alse contained numerous crystals of phosphote of lime. *Berberis.*

July 5. Another attack of colic. The night from July 5 to 6 was very bad, with violent pains. *Belladonna.*

July 6. A copious discharge of sand and gritty grains. Temperature higher. *Berberis.*

July 6. A large calculus was discharged; it was shaped like a sheep's head and of the size of a filbert. In the succeeding days the condition of the patient considerably improved. The stools took on more color, the jaundice diminished and disappeared. Her appetite and strength return. The patient finally begins to again walk about in her room.

July 30. She departed for Vichy, still feeble, indeed, but in full reconvalescence.

During the last seven days the patient felt only very slight traces of suffering from biliary stones; she is again active, vigorous and well nourished. Still there was frequently noticed in her stool, during any disturbances in digestion, sand and detritus of caculi, whether in the form of grains or of scales which remained on the blotting-paper as the residuum of the washed out fæcal substances.

In February, 1904, after the woman considered herself fully restored, and had given up her treatment, living again in her own fashion, there again appeared some indications and at last an actual attack of gall-stone colic. She again discharged some calculi, but without any sign of obstruction in the biliary passages. The patient, who had thought herself premanently cured from gall-stone colic, was of course somewhat discouraged; though her condition, as a whole, may be called really satisfactory.

Though the homœopathic treatment begun with her had not wholly removed the diathesis to the formation of gall-stones, this treatment had, nevertheless, helped the patient over a very precarious and critical period, and introduced her into a very passable state of health, without exposing her to the dangers of a surgical operation, always more or less uncertain in its results. When she again met the professor, who had advised her to undergo a surgical operation as a last refuge, he was not a little surprised at the course of events and with his customary amiability he felicitated her on the surprising results of the treatment she had used.

That Berberis, as the author claims at the conclusion of his interesting observations, in this case essentially contributed to the cure we willingly grant, as this remedy has also been of great service in other analogous cases.—*Homœopathic Recorder*, Nov. 15, 1904.

HOMŒOPATHIC AND BIOCHEMICAL THERAPY.

By Dr. Strohmeyer, Frankfurt, A. M.

Translated for the Homœopathic Recorder from the *Leipziger Pop. Zeitschr.*, Sept. 1, 1904.

The following case shows the superiority of the homœopathic biochemical therapy over that of the old school, and also shows briefly the method by which I am accustomed to treat chronic affections of the lungs:

The twelve-year old daughter of an official has now been suffering for three years from cough with a thick yellow expectoration, with occasional nocturnal perspiration, and she complains of lancinating pains in the right side with constant lack of appetite, palpitation of the heart and general weariness. The family physician had prescribed cod liver oil and a visit to the country, but this did not produce any change. An examination showed a pretty extensive catarrh in the tip of the right lung, while the left lung was unaffected. The girl is very slender in build, brunette, and bright intellectually.

Prescription: *Natrum phosphor.* 6, trit., as much as would lie on the tip of a knife, four times a day. A decisive point in my selection of phosphate of soda was the coating of the tongue, which was intensely yellow, as I had frequently observed in consumptives, and also the fact that an enlarged tonsil had been removed by surgical operation a few years ago. The use of meat was also reduced to a minimum, while the abundant use of fruit of every kind was recommended. Every morning the whole body was washed with water that had the chill taken off, and systematic respiratory exercises morning and evening were recommended. I also directed the mother to insist on her daughter's taken deep breaths while walking in the open air. After three weeks her weight was increased by one and a half pounds, the thick yellow coating of the skin had changed to a yellow mucous coating. The expectoration which had strongly increased during the first day was much changed not only in quantity, but also in quality; and the dull sound in the tip of the right lung is becoming clearer, there is still a considerable rattling as from fine bubbles. Prescription: *Natrum phosphor.* 6, tiwice a day, a dose as large as a coffee-bean, taken dry.

In four more weeks there was again an increase in weight; the expectoration is now colored yellow only in the morning; during the day it is of clear mucus; the appetite is good. Auscultation only shows noises in isolated spots; the sounds of percussion are nearly the same on both sides—the yellow coating has disappeared. Prescription: *Arsenicnm jodat.* 12 D., two large pellets, four times a day. A short time ago the father told me that the cough had vanished and every one was surprised at the healthy appearance of the child. In reviewing my successful treatment of forty lung-patients, I think I have a right to emphasize the great service which Schuessler's *Natrum phosphor.* has done in my practice. Wherever I find the indications: A slender build, a lively temperament, a *thick yellow coating of the tongue*, great anorexia, sudden change of mood, active sexual desire, etc. I generally begin the treatment with *Natrum phosphor.* and at my next visit I generally find that the cough at first considerably increased with an augmented expectoration, while the general health and the appetite have improved. To this corresponds a change in the coating of the tongue, which has become of a more yellowish-mucous nature. Some patients emphasize the action of the remedy on the stomach and intestines. I have also used *Calcarea phosphor.* with good effect, especially with women whose chest is affected and who have an excessive menstrual flow. The characteristic differences between the patients who will be benefitted by *Natrum phosphor.*, and those for whom *Calcarea phosphor.* is suitable, is difficult to define in words, but as a whole *Calcarea* will be found more suitable, where persons have had a hard time in their daily life, as we often see it with women of the working classes, who have been brought down by a series of badly nursed confinements, through much nursing or through household cares. With them there is also usually a depression of mind, thus the very contrary state to that of the proverbial freedom from care and to the hopefulness characteristic of the average consumptive.

With *Calcarea phosphor.* I usually start with higher potencies, *e. g.*, with the 12th trituration and then gradually descend to the third or even lower. Later on in the treatment I substitute *Arsenicum jodat.*, also in higher potencies, for Schuessler's remedy, and I am obliged to acknowledge the efficacy of this remedy, as well as that of *Kreosotum.* I have also convinced myself of the usefulness of the Scotch wrapping, which is so much lauded by Dr. Bergmann, and have thereby, benefitted a patient; but in the cases indicated above I have had excellent success with Schuessler's remedies (also *Ferrum phosph.* should not be forgotten, especially when the cough is more dry, and when the patient keeps changing colour every moment). A number of patients who have again become enabled to work testify that also in phthisis many roads lead to the goal, and it is best to carefully collect all the experience gathered, without despising aught that has been honestly gathered, nor should we be so opinionated as to refuse to try the different remedies, keeping whatever is good. Systematic respiratory exercise, daily ablutions of the entire body, a diet as nearly vegetarian as possible, *gradually* accustoming oneself to sleeping with open windows, as well as strict abstinence from alcoholic liquors, supply important aids to internal therapy and are absolutely necessary in order to secure satisfactory results.—*Homœopathic Recorder*, November 15, 1904.

THIOSINAMIN.

BY DR. F. G. OEHME, M. D.

The drug is made by mixing two parts of oil of black mustard seed, one part of absolute alcohol and seven parts of aqua ammonia of the specific gravity of ·0960, heating to 105· F., and after a few

hours evaporating over a waterbath. *Thiosinamin* is deposited as the mixture cools, as white, rhomboic crystals, having a garlic odor and very bitter taste. It is moderately soluble in water, very soluble in alcohol and ether.

It causes a garlic taste in the mouth, diuresis and diaphoresis in doses of 4-8 grs., three or four times a week; also slight nausea, headache and malaise, but no serious ill effects have been reported from moderate doses.

The drug has been injected more frequently than taken internally. It is injected either under the skin or slowly into the muscular tissue between the shoulder blades or into the biceps or glutens. If injected into the lesion its effect is stronger and prompter. The injections are painful, but not excessively so.

Begin with ½ gr. and increase to 1½ gr., or more, twice a week, never oftener than once a day; discontinue injections for ten days every one and a half to two months. A solution of ten parts of *Thiosinamin* in one hundred parts of a sterilized mixture of water and glycerine keeps well and is non-irritating; use 1-15-30 drops of it for one injection. A 15 per cent. alcoholic solution causes sharp pain at first.

Thiosinamin has been injected in doses as high as two drachms into carcinomatous tumors without stomach distress and without any appreciable good effect upon the malignant growth.

It is taken internally in doses of ½-3 grs. in capsules daily, in one case for eight weeks.

Thiosinamin produces the resolution of tumors and the absorption of scar tissue and cicatricial contraction of the skin, tendons and ligaments after burns, lupus, etc.

It has been used with success in ectropion, with perfect success in opacities of the cornea, *after the last vestige* of inflammation had disappeared; in cataract, deafness after otitis, also in catarrhal deafness, urethral strictures, in uterine myomata and tumors of the uterine appendages, ankylosis of the knee after lupus, chronic, enlarged and tubercular lymphatic glands, sarcoma, fibroids, scleroderma, syphilis, palliative in inoperative malignant growths (keloid, carcinoma).

It is contra-indicated in all cases of partially healed tuberculous foci.

Authorities: Hebra, Unna, Juliusberg, Crocker and many others.

CASES.—Twenty-five injections caused complete extension of so severe a contraction of the palm that the finger nails had grown into the flesh.

A man of sixty years had a stricture of the urethra for thirty years; bladder enormously enlarged and sacculated and sinuses penetrated into urethra and scrotum in many places. Only a filiform sound could be passed, when the patient was completely relaxed.

Three grains of *Thios.*, after meals. In three months he could pass a No. 10 sound himself. The sinuses had closed and the patient's general health had greatly improved. He could pass fair stream of urine without a catheter.

A man of fifty-six years had stenosis of the pylorus and for the last twenty-eight years gastric disorders. He had sufficient fibrous strictures to cause secondary dilatation of the stomach for over a year. Seven drops of a 15 per cent. solution of *Thios.* in alcohol were injected into the subcutaneous tissue of the back and this amount was increased until on the fourth day fifteen drops were being used. The next four injections of fifteen drops each were made twice weekly. The next injection was of twenty-two drops, but it produced distressing symptoms, therefore fifteen drops were used thereafter. After the eleventh injection the symptoms had practically disappeared and he ate food with a relish. After the twenty-third injection the patient felt well and had no symptoms, not even indigestion.

Thios. was used with success in two cases of Dupuytren's contraction.

A remedy which has such wonderful effect in hitherto perfectly incurable and intractable cases would probably show also great effect in other directions than those from large doses, if proved and given in attenuations. Why not prove it?—*Homœopathic Recorder*, November 15, 1904.

MY EXPERIENCE WITH BIOCHEMICAL REMEDIES.

By Eli G. Jones, M. D.

I was asked to prescribe for a lady suffering from severe nosebleed; she had taken a sudden cold at the monthly period, her menses stopped. It was the *worst* case of nosebleed I have ever seen. I gave her *Ferrum phos.* 3x, fifteen grains in cup of water, teaspoonful every fifteen minutes; a few doses checked the haemorrhage. In all the years that I have been in practice I have never seen a case of nosebleed cured so quickly.

I had a case of a young lady suffering from profuse leucorrhœa. I gave her *Kali mur.* 3x, five tablets once in three hours, cured her in a week's time. In long standing constipation I have used successfully *Kali mur.* 6x, ten grains at bedtime, followed by a glass of water.

Several years ago I had a bunch in my left breast; it felt very sore and I had darting pains through it, felt quite hard, I took *Calc fluor.* 6x, five tablets, four times a day. In about six weeks it was all gone, have felt nothing of it since then. I am satisfied it was a cancer.

In several cases of otorrhœa discharge from the ear; I have cured them with *Silicea* 12x, five tablets, three times a day. Using locally five grains *Boracic acid*, night and morning, blown in the ear with a powder blower.

In measles I used to use tincture *Aconite* and *Ipecac.*, and they always seemed to do nicely for me, but at last I had one case of a little girl where the fever and cough did not yield to the above remedies. I change the treatment to *Ferri. phos.* 3x and *Kali, mur.* 3x, fifteen grains of each in separate cups of water, tea spoonful of each in alternation once in fifteen minutes, made a decided change for the better in all the symptoms in a few hours.

Calc. fluor. 6x has helped me cure many cases of piles; I give five grains in tablet form once in three hours. Apply to the pile tumors the same remedy, one drachm to the ounce of vaseline. In tumors in the breast and in the glands with *stony* hardness this is *the* remedy. It also helps me to cure prolapsus uteri.

Kali phos. is the nerve tonic and brain food par excellence.

I am glad to contribute my mite to the general stock of medical knowledge. I like the Homœopathic Recorder because I always get some *facts* from it each month that helps me to *cure* my patients. Some medical journals I have read a whole year without getting one solitary fact to help me in my practice.—*Homœopathic Recorder*, November 15, 1904.

Gleanings from Contemporary Literature.

REPORT OF THE SPECIAL COMMITTEE APPOINTED TO EXAMINE THE WORKING OF THE SEPTIC-TANK INSTALLATIONS IN BENGAL.

PART I.—PRELIMINARY.

Appointment of the Committee.

The Committee to report on the working of the existing septic-tank installations in Bengal, and on the means which should be adopted to render the system efficient and free from objection, was appointed under the orders contained in His Honour's resolution in the Municipal Department No. 236T.—M., dated 20th April 1904. Colonel S. H. Browne, C.I.E., was appointed to be the President, the Hon'ble Mr. D. B. Horn and Major F. C. Clarkson, I.M.S., to be Members, and the Hon'ble Mr. L. P. Shirres, I.C.S., Secretary to the Government of Bengal, Municipal Department, to be the Secretary of the Committee.

Instructions to the Committee.

2. The Committee were directed in the first instance to ascertain the actual facts as to the existing installations, and to consider carefully the construction and the situation of the structures, and the character, chemical and otherwise, of the effluents which are discharged. They were then required to examine the different methods by which the effluents can be disposed of. Lastly they were requested to advise what changes are required to be made in the existing installations, and in their methods of working, so that the best results may be obtained. Their instructions made special reference to the septic tanks in the mills on the banks of the Hooghly, whose rapid increase has rendered it necessary that the conditions on which this method of sewage disposal can be permitted shall be determined without delay.

Committee's method of enquiry.

3. In order to give effect to these instructions the Committee circulated a series of questions to the Managing Agents of the various jute mills and to others, and the replies which were received have been printed as an appendix to this report. They personally visited the Gouripur, Kanknarrah, Anglo-Indian, Fort Gloster and Hastings Mills and examined the installations which had been erected for the workmen at those places, and the effluents which were being discharged into the river. The Gouripur and Fort Gloster Mills were selected because of the excellent results which were said to have been secured at them ; the installations at the Kanknarrah and Anglo-Indian Mills were reported to be fairly representative of the remainder ; and Hastings was visited, although the installation was not then working, because of the public attention which has been attracted to it. A number of witnesses also attended meetings of the Committee at Writers' Buildings, and gave their evidence orally. Their answers were recorded and have been placed in the Appendix. The Government Chemical Examiner furnished a chemical analysis of the effluent from the Gouripur Mills, and Dr. Neild-Cook, the Health Officer of Calcutta, made bacteriological examinations of the effluents from the Gouripur, Kanknarrah and Titagarh installations, as well as of the river water close to their outfalls, and of the river water near the Pulta intake. Captain Rogers, I.M.S., Officiating Professor of Pathology, Medical College, Calcutta, examined the river water bacteriologically, and Dr. James, Special Drainage Engineer of the Bombay Municipality, readily placed at the disposal of the Committee the results of his most recent investigations. Careful observations were taken of the ebb and flow of the tides, and of the discharge of the river Hooghly.

The Committee also studied the published reports of the Royal Commission on sewage disposal, and such other recent literature on the subject as they could procure.

Reasons for submission of a provisional report.

4. The Committee are not in a position to give complete and final report, because the observations for the purpose of ascertaining the fresh-water flow of the river in the dry season have not yet been concluded, and because certain experiments for the purpose of ascertaining whether the effluent can be bacteriologically purified by filtration through sand filters still remain to be carried out. They have however arrived at certain definite conclusions, and they consider it desirable that these should be presented now, both because the conclusions are of practical importance, and because the manner in which, and the extent to which, the final recommendations must be modified by the results of the further enquiries and experiments referred to will be readily apparent.

PART II.—Conclusions of the Committee regarding the continuance of the present system of discharging into the River Hooghly effluents which have not been bacteriologically purified by filtration through sand or otherwise.

Personal examination of the effluents by the Committee

5. The results of the personal examination by the Committee of the effluents discharged into the river were on the whole satisfactory.

Appearance of effluents.

6. The effluents were found to be slightly opalescent fluids, containing no perceptible solids, of a slight brownish tinge in colour, and in some cases giving off a faint odour of sulphuretted hydrogen. They were subjected to the incubator test and were found to be non-putrescible. They varied somewhat in purity and freedom from odour, those from the Gouripur and Fort Gloster Mills being the most satisfactory.

Chemical Analysis.

7. The chemical analysis of the effluent from the Gouripur Mill made by the Chemical Examiner to the Government was considered by him to be satisfactory. In regard, however, to the proportions of nitrates and albumenoid ammonia, which indicate the extent to which the liquid has been purified by oxidation, the results compare unfavourably with the reports of similar analyses made in England. The nitrates, which are the ultimate product of oxidation, were only ·1836 per 100,000; while on the other hand the albumenoid ammonia, whose presence shows that oxidation is still incomplete, was as much as ·34 per 100,000. Authorities in England hold that in good effluents the proportion of nitrates should exceed ·5 per 100,000, and that the proportion of albumenoid ammonia should not exceed ·1 per 100,000. In some effluents the nitrates have been found to amount to even 9·0 per 100,000. The degree of purification obtained in the Gouripur effluent cannot therefore be looked on as entirely satisfactory.

Bacterial analysis.

8. The biological charactersters of the effluents examined by Dr. Cook not very satisfactory, the numbers of colon bacilli found in them being as large as that ordinarily met with in crude sewage. The reports submitted by Dr. Neild Cook and Captain Rogers differ considerably in details, but they agree in showing that there is considerable bacterial contamination of the river water near the outfalls of these effluents, although this was found to have largely disappeared in the immediate neighbourhood of the Pulta intake.

Survival of pathogenic bacteria.

9. The important question as to the extent to which pathogenic micro-organisms survive the struggle in the septic tank has been investigated by Major Drury, I.M.S., and Captain L. Rogers, I.M.S., and copies of the latter officer's notes on the subject are appended. It was found that

whilst the process is inimical to some of these organisms, others survive, so that the effluents are considered to be potentially dangerous. Still more unfavourable results were obtained by Dr. Houston, Bacteriologist to the London County Council, in an elaborate and exhaustive series of investigations which he made in connection with the sewage bacterial beds at Crossness on the Thames. Dr. Houston has shown that effluents of this kind, otherwise unobjectionable, contain large numbers of living pathogenic organisms such as Streptococci : B. Pyocyaneous : B. Enteritidis Sporogenes and some others. He remarks that if Strepotococci can resist the biological process, there is small ground for the belief that other germs of a dangerous sort, e.g., the Typhoid bacillus, will be destroyed. He considers that the effluents from the bacteria beds ought to be regarded as hardly if at all more safe in their possible relation to disease than the raw sewage before treatment. A similar opinion has also been expressed by the Royal Commission on the disposal of sewage.

Extent of pollution caused by effluents.

10. The degree of pollution of the river which is caused by the effluents depends not only upon their chemical and bacteriological characters, but upon the rapidity with which further oxidation is produced and the bacteria are destroyed through contact with the river water and by the action of the air and the sun, and upon the volume of water which passes down the river and with which the effluents are mixed.

Further purification through the agency of the river water, the sun and the air.

11. The extent to which sewage effluents are diffused and purified in rivers has been specially investigated in the case of the Thames, by Professor J. Clowes, D. Sc., and by Dr. Houston. Professor Clowes examined the water of the Barrow deep immediately after a fleet of steamers had discharged into it their cargoes of sewage sludge. In this sewage sludge the average number of bacteria was found to be 129,583,333 per cubic centimetre, yet the surface water immediately afterwards was found to contain only 1,940 per cubic centimetre. Four hours afterwards the number of bacteria had declined to 380 per cubic centimetre at the surface, and to 220 per cubic centimetre at 10 feet below the surface. These results correspond with those obtained by Dr. Houston, and as both Professor Clowes and Dr. Houston are well known to be skilled and accurate observers, the results they obtained justify the belief that in the case of the river Hooghly any pollution caused by the discharge of septic tank effluents into it must disappear very rapidly.

Estimate of the volume of the fresh-water discharge of the Hooghly.

12. No record of observations of the volume of fresh water passing down the Hooghly could be discovered, but an estimate, which is believed to have been based on observations, was made about 40 years ago, and the discharge was then taken to be 20,000 cubic feet per second at the driest season. A careful enquiry was therefore instituted for the purpose of ascertaining the quantity of fresh water which comes down the river at the present time. The investigation is still proceeding and cannot be completed before the close of the cold weather ; but the results which have already been obtained point to the probability that in the months of February and March the fresh-water discharge of the Hooghly does not exceed 2,000 cubic feet a second.

13. The exact calculation of the effect caused by a reduction in the volume of water passing down the river would involve a prolonged enquiry, but a sufficient idea of the relative importance of this factor will be apparent from a simple calculation. The cross section of the river at Pulta at low water is approximately 32,000 square feet, and for the purpose of the calculation it may be assumed that the cross-section is the same at the points below Pulta, and that the fresh water coming down

from above pushes the other water before it and does not mix with it. The upward flow of the tide at Pulta lasts about four hours, but when the tide turns all the water that has been held back flows down, and more water continues to flow down until the tide turns again. The quantity of water in the dry season which flows down between two turns of the tide, or say in 12 hours, is 2,000 × 60 × 60 × 12 ; and if this is divided by 32,000, the cross section of the river, the quotient gives the length of the portion of the Hooghly bed from Pulta downwards which is filled by this volume of fresh water just before the tide again turns. In other words a particle of water would move 2,700 feet or more than half a mile down the river between two turns of the tide, and in a whole day it would therefore move more than a mile. In the rains with a discharge of 20,000 cubic feet a second the movement will be about ten times as much.

Recommendations regarding the discharge of effluents into the Hooghly.

14. The Committee have very carefully considered and discussed the facts set forth in the preceding paragraphs. They are deeply impressed by the great advance in Sanitary Science which is represented by the septic tank system, and they consider that the replacement of the old insanitary latrines by septic tank installations has effected a marked improvement. The existence of great pollution in the past does not justify the continuance of any pollution in the present or in the future, but nevertheless the fact is of practical importance that stoppage of the present system would probably increase rather than diminish the pollution, and it will therefore be a misfortune if some means cannot be found of overcoming the objections to the use of this tanks. The chemical composition of the effluent may be brought by suitable improvements up to the standard attained in England, and will then be open to no serious objection. The only danger which needs to be considered is that arising from bacteriological pollution. During the greater part of the year when there is a large and rapid outflow of the Hooghly this pollution in all probability rapidly disappears, and produces little, if any, effect on the drinking water-supply of Calcutta and Howrah. Moreover this supply is filtered by the Municipal authorities, and after such the filtration danger is no longer appreciable. The action of Government must, however, be determined not by the minimum, but by the maximum pollution during the year ; in other words by the pollution during the dry months. The volume of water coming down the river is then more nearly comparable to that of English rivers, and in view of the results obtained and the opinions expressed by Dr. Houston and by the Royal Commission on Sewage Disposal the Committee feel that they have no option but to acquiesce in the decision that effluents which are not subjected to bacteriological purification are potentially dangerous if discharged into a river whose water is used for drinking purposes. Their conclusion therefore is that the effluents in their present condition should not be emptied into the river above the water-works, or so near the water-works as to affect the water-supply. The precise point below Pulta at which a line should be drawn cannot be stated until the observations on the ebb and flow of the tides have been completed, but for the present they recommend that the discharge of the effluents without such purification should be permitted at any point below Tolly's Nala. If it is hereafter found impossible to effect the requisite purification by means of sand filters, or if the effluents cannot be disposed of otherwise than by being discharged into the Hooghly, the question may be reconsidered ; but otherwise in view of the sentimental objections which exist, and of the desirability of keeping the water of the port as pure as possible, the Committee are of opinion that the rule now suggested should be adhered to. The sentimental and religious objections to the pollution of the Hooghly have not been discussed, but it will be

seen from the minutes of evidence that a difference of opinion exists regarding the latter, and the real objection appears to be sentimental rather than religious, and to be largely due to ignorance of the transformation effected in the nature of the sewage by its passage through the septic tanks. They conclude therefore that the opposition would probably subside if the real facts were brought home to the public, so that the great utility of the new system might be recognised.

PART III.—METHODS OF DISPOSAL OF THE EFFLUENT OTHERWISE THAN BY DISCHARGE WITHOUT FURTHER BACTERIOLOGICAL PURIFICATION INTO THE RIVER.

Other methods of dealing with the effluents.

15. In the preceding paragraph the conclusion was stated that provided the installations were properly worked the discharge of the effluents without further bacteriological purification might be permitted into the River Hooghly in the case of mills situated below Tolly's Nullah. For the disposal of the effluents from mills to which such permission cannot be accorded three suggestions are referred to in the Government Resolution, namely :—(1) that the effluents should be run over land ; (2) that they should be used as feed-water for boilers ; and (3) that they should be bacteriologically purified by filtration through sand before being dicharged into the river. No other expedient has been proposed, and therefore only these three have been dealt with.

Disposal of effluent by running it over land.

16. With regard to the disposal of the effluents on land in the neighbourhood of the river Hooghly, enquiries show that the land in the vicinity of many of the mills is submerged for at least three months in the year, that the cost of acquiring the land and conveying the effluent there would be great, and that in many instances it would be necessary to pump the effluent up in to a reservoir in order to run it off on to the land.

In the rainy season

17. In the rainy season effluents disposed of on land would be quite out of control, and there would be considerable probability of the fluid finding its way into tanks used for drinking purposes, in which case it would prove even more dangerous than if discharged directly into the river. It would, in addition, be disadvantageous from an agricultural point of view, as the land would be saturated with moisture. This method of disposal may therefore be considered impracticable and dangerous during wet weather.

In the dry season.

18. In the dry season the objections to disposal on land are not so great : the soil however is not a very suitable one for the purpose, and does not stand in great need *of the fertilizing properties which these effluents undoubtedly possess, and* for which their *application to the land is the chief reason. Effluents* are not appreciably improved by the process, and there is evidence to show that in some cases they are even deteriorated. They must, besides, eventually find their way to the river.

Conclusion.

19. For these reasons land treatment is not to be recommended when other more satisfactory methods of disposal are available.

Uses of effluent as feed-water for boilers.

20. In paragraph 6 of the Government Resolution the use of the filtrate as feed-water for the boilers, which was suggested by the Sanitary Board, is referred to, and it is remarked that if this course could be adopted it would apparently solve the problem in the case of the Hooghly Mills. The disposal of the effluent in this manner would in fact remove all the objections which have been raised to the use of the septic tanks attached to those mills ; and if the sand filters fail to effect the requisite purification,

this resource may prove to be the only one practicable for mills whose discharge would affect the Calcutta and Howrah water-supply intakes. The suggestion has therefore received the most careful consideration.

Objection of mill-owners.

21. The mill-owners and their representatives who were consulted had no rooted objection to the idea of the effluent being got rid of in this manner, but they were apprehensive that there might be trouble with their workmen who had to come into contact with the fluid, and they were doubtful, in spite of the opinion of the Chemical Examiner, whether the fluid might not have some deleterious effect on the boilers.

Injury to boilers and machinery.

22. As regards the latter difficulty, the Commitee find that for the last six years the effluent has been used as feed-water at Hampton in Middlessex, and that there has never been any trouble with the boilers in consequence of this practice. The correspondence on this subject is attached to this report.

Difficulties with workmen.

23. The other objection, in regard to the workmen, is one the full force of which can be ascertained only by actual trial, but the Committee is persuaded that the fears which are entertained in this respect are exaggerated. Thus, to take a concrete case, one manager objected that if the suction-pipe were to jam, it might be difficult to get anyone to clear it owing to the idea of effluent being mixed with the water. If all other means failed, however the work to be done is very simple, and a *mether* could easily be sent for to do it. The Manager of the Gouripur Mills appears to have taken a clearer view of the situation. He stated that his objections were chiefly sentimental, as the men who clean the boilers are mostly Hindus, and they would probably object to going into the boilers if they knew that the effluent was being used as feed-water. Muhammadan firemen, he thought, would also have the same objections as the Hindus, but their objections might probably give way if they were pressed. It is certainly probable that at first there would be some trouble; but a little firmness, and perhaps at first a little extra expenditure, would overcome the difficulty, and that when once the system was in working order there would be no more trouble on this account.

Difficulty of supervision.

24. Mr. Silk and Dr. Cooke have suggested a further difficulty, namely, that even although orders to dispose of the filtrate in this way are passed, such orders will be constantly evaded. The Committee do not however attach much weight to this objection. When once the system is in working order the sentimental objections to it will be soon forgotten, and the motive to evade the orders *will disappear. Apart from that, the installation my be so arranged that the filtrate cannot be easily disposed of otherwise, and this, coupled with the liability to Government inspection, may render it both difficult and* unprofitable to evade the orders.

Difficulty with surface-condensing engine.

25. This method of disposing of the effluent will answer in the case of most mills. The manager of one concern has however represented that his Company are about to instal a new system of engines which will be surface-condensing, and which will therefore require a quantity of water which will be inconsiderable in proportion to the discharge from the septic tanks.

Conclusion.

26. On the whole, therefore, the Committee are of opinion that this method of utilising the filtrate is practicable, and that in some cases it may hereafter be found necessary to insist upon the disposal of the effluent in this manner.

Disposal by filtration through sand.

27. The remaining suggestion is that the effluent should be bacteriologically purified by further filtration through sand. The standard of purity which the Committee suggest is that of the River Hooghly itself at the point at which the discharge into it is permitted. They are strongly of opinion that if such purification can be effected this method of disposing of the effluent may be adopted without appreciable danger to the community. The practicability of the suggestion can, however, be satisfactorily ascertained only by experiment, and arrangement have accordingly been made that this should be done. There is good reason to hope that this method of disposal will prove successful, but as experiment alone can settle the matter it has not been considered necessary to discuss the subject in detail.

PART IV.—IMPROVEMENTS IN THE EXISTING INSTALLATIONS AND IN THEIR METHODS OF WORKING.

28. It only now remains for the Commitee to submit their recommendations regarding the improvements which seem to them advisable in the existing installations and in their methods of working so that the best results may be obtained.

General plan of latrines and tanks.

29. From the descriptions given in the replies to the questions which are appended to this report it will be seen that all the installations are modelled on the same general plan, and that each consists of a latrine fitted with from 30 to 60 seats, which are fixed on the top of an air-tight chamber or tank. The length and breadth of the tanks appear to be regulated to a great extent by the number of seats in the superimposed latrines. Thus the Gouripur latrine has 52 seats in two rows of 26 each, and to accommodate that number of seats so arranged the latrine must be about 60 feet long by 14 feet broad. These are the exact dimensions of the latrine and also of the tank below it. The sewage dealt with is in every case domestic and contains on manufacturing waste, and it does not therefore require to be screened.

Shape of tank.

30. From the descriptions given in the appendices it will be seen that in all cases the length of the tank is from four to five times the breadth. This shape seems to be open to no objection. The sewage should fill about half the tank, and should not be more than five or six feet in depth.

Size of tank.

31. The size of the tank required depends upon the length of time during which the sewage should remain in it, and upon the daily quantity of sewage which is passed into it. The quantity of sewage again varies not only with the number of users, but with the allowance of water for each user. When these data are given the dimensions of the tank required can be worked out. The fact must, however, be borne in mind that a certain number of the workmen will visit the latrine more than once in one day.

How long sewage should rest in the tank.

32. Regarding the period during which the sewage should remain in the septic tank, Mr. Dibdon says it would seem as if any increase of flow above what is sufficient to fill the tank in 24 hours is attended with a corresponding decrease in the quality of the effluent, whilst a reduction in speed to the 48 hours' rate gives very little advantage. If the flow is increased too much, the tank will become filled with sludge before septic action is produced.

How far English experience is a guide.

33. In dealing with English experience, however, it must be remebered that the sewage while passing through the sewers is undergoing septic treatment, so that in all such cases the septic treatment probably exceeds 24 hours. Moreover in England the daily quantity of sewage in proportion to the population is much larger than in India, *e.g.*, the daily quantity at Exeter is 25 gallons a head as compared with only about 3 gallons a head in India. On the other hand in India bacteriological action is more active, so that *cæteris paribus*, a shorter period of rest for the sewage in the septic tank might possibly suffice.

Indian experience.

34. In India the experience of septic tanks is limited, but Mr. James, Special Drainage Engineer of the Bombay Municipality, has tested the effluent from different compartments of the septic tank at Matunga after 4, 6 and 8 hours' contact, respectively, and he has found that with sewage having an average temperature of 83·60F., 55 per cent. of the purification occurs in 4 hours, 82 per cent. in 6 hours, and 84 per cent. in 8 hours. He is satisfied that these results are correct, and that if economy is a serious object in the construction of a septic tank, 6 hours' contact would probably give all the purification for that class of treatment. He would, however, prefer always to allow 8 hours in order to ensure a margin of safety, especially as the flow of sewage is somewhat uneven. In regard to this statement Mr. Disney observes that Mr. James is dealing with much more diluted sewage than is obtained at mills. Mr. Disney himslf has stated in his evidence that he considers 24 hours to be about the proper period of rest in the septic tank, but that much depends on the dilution of the sewage; a rest beyond this period having been proved to have had no better results, but rather the reverse, and that experience in England shows that putrefaction sets in after 24 hours.

Recommendation of Committee.

35. At the installations with which this report deals the sewage is ordinarily allowed to remain in the tank for a period of about 24 hours, and the Committee recommend that in any rules which may be laid down for the working of the tanks this period should be prescribed.

Allowance of water for each user.

36. There was considerable variation in the quantity of water allowed for each user. At Gouripur the quantity used was stated to be from 6 to 7 gallons a head, whereas in the Anglo-Indian Jute Mills it was only one gallon a head. These were extreme cases, and usually the allowance was three gallons a head. The quality of the effluent appeared to improve with every increase in the quantity of water used. The recommendation of the Committee is therefore that where possible five or six gallons a head should be allowed, and that in no case should the quantity be less than three gallons.

Special apparatus for flushing.

37. At some of the mills there was in use a modification of Donaldson's patent flushing system whereby each seat is flushed by a specified quantity of water every time that it is used; whereas at other mills the flow of water in the latrine was continuous and did not depend upon the number of users. The former arrangement appears to the Committee to be the more suitable, because it secures a greater uniformity in the strength of the sewage, and they recommend its adoption in all installations.

Overworking.

38. The principal reason why the working of some of the installations was not entirely satisfactory was that they were overworked. Thus at one of the Mills the installation was designed to accommodate only a portion of the workmen, the intention being to make a second installation if the first was a success. It

proved more popular than was anticipated, and as the supply of water ran on continuously irrespective of the number of users, the average quantity for each user became no more than one gallon. To prevent such overworking some of the mills use turnstiles which automatically register the number of persons passing through, and this enables the management to check the number of users and to prevent overuse. It is recommended that this mechanical device should be employed at all mills where there are septic-tank installations.

Arrangements for preventing sudden disturbance of sewage in tank.

39. In order to secure an even flow through the tank and to avoid unnecessary disturbance of the contents, it is desirable that the sewage should be discharged into a small chamber at one end of the septic tank, the syphon pipe for emptying the tank being fixed at the opposite end, so that there may be a slow and steady advance of the sewage through the tank. For the same reason it is desirable that the sewage should be discharged continuously from the tank. In order that this arrangement may be carried out it is necessary that the filters should be able to receive the effluent in a continuous flow: in other words the filtration must be continuous and not intermittent. These terms are explained immediately below.

Description of filters.

40. When the sewage issues from the septic tank it passes into filters. These are open masonry tanks which are filled with cubes of broken bricks such are used for road metal, or with coal or engine ashes or other material. Filtration may be either intermittent or continuous; and it may also be either upward or downward, that is to say the effluent may be admitted to the filter either at the bottom or at the top. The term filtration is somewhat misleading because the process is not one of mechanical straining as in the case of sand filters, but is purely chemical and biological. The effluent is acted on by the bacteria in the filter, which produce chemical changes in its constituents. Hence the filters are somewhat more accurately described as contact beds. If the filtration is intermittent the beds get a rest and are aerated after being used; where it is continuous the beds are in duplicate and are used alternately, so as to secure aeration.

The intermittent system.

41. As an example of the intermittent system the Gouripur filtration arrangement may be described. There are eight contact beds arranged in two sets of four each. The first set of beds is filled with hard burnt *jhama* bricks, broken into pieces about four inches cube. The finer beds are filled with the same material, but broken into cubes of two inches each. The effluent in the coarse beds is allowed to remain from three to four hours, when it is passed on to the finer beds where the same process is followed. The effluent passes finally from those beds into the river. As soon as each contact bed is emptied it is allowed to rest for aerating purposes, until its turn comes again. The system of filtration at these mills is both intermittent and upward.

The continuous system.

42. The system of filtration in general use at the mills is continuous and downward; that is to say the effluent from the septic tank is allowed to spread over the surface of the filter-beds, and filtration takes place downward.

Arguments for the continuous system.

43. In regard to the most suitable system of filtration the evidence before the Committee is in favour of continuous filtration. Mr. Disney is of opinion that continuous filtration gives better results than the intermittent upward filtration in use at Gouripur. Mr. Silk is also in favour of continuous filtration, as in his opinion there is the probability when the intermittent system is used that some of the bacteria are washed out on

each occasion that the valve is opened to empty the contact beds. It has also been pointed out above that the continuous system helps to secure a steady and even flow of the sewage through the septic tank.

Arguments for downword filtration.

44. The evidence before the Committee was also in favour of downward as opposed to upward filtration. Mr. Wilmot, who has fitted up a number of installations, states that his firm has tried upwardfiltration, but has found it unsatisfactory. The personal observations of the Committee support this evidence. Another argument in its favour is that with it a sprinkler may be used to aerate the effluent on its way from the tank to the filters.

Sprinklers.

45. A sprinkler, as its name signifies, is a mechanical device for sprinkling the effluent in drops over the surface of the filter. In some of the installations a rough form of sprinkler is used ; but in no instance is it scientifically arranged, so that the tank effluent can be aerated and equally distributed over each square foot of filter-bed. Mr. Wilmot states that his firm has found the most, successful arrangement to be one by which the effluent, instead of being discharged from the septic tank into the filter-beds at most the level of the filtering media, has to pass through a series of troughs and disks so contrived that the effluent is sprinkled over the entire filtering media. As the surface of the filter-beds is small, the Committee are satisfied that the Agents of the Jute Mills, with the assistance of their Engineers will have no difficulty in designing a sprinkler that will ensure an equal distribution of the effluent over every square foot of filter-bed.

Commitee recommend continuous downward filtration and sprinkler.

46. The Committee are in favour of continuous and downward filtration, and recommend that it should be adopted every-where and they recommend also that the effluent should be distributed over the surface of filter-bed by some form of sprinkler.

Filtering material.

47. The quality of filtering material is an important matter, especially in the neighbourhood of Calcutta where the choice of material is limited. In the opinion of the Committee the most suitable material is hard burnt or vitrified pugged *jhama* bricks, broken into cubes of suitable size. In India, brick earth is easily procurable so that *hama* is inexpensive, and is much more satisfactory than either coal or engine ashes which are being used at some of the installations. In regard to the size of the cubes the Committee are in favour of the filtering material being broken into pieces of half-inch diameter in the upper layers, and of from 1½ to 2½ inches diameter in the bottom layers.

Dimensions of filter-beds.

48. The shape of the filter-bed is not as in the case of the septic tank a matter of importance. The depth of the filtering material should not, however, exceed 4 feet 6 inches. As regards the area of the filter-beds requisite it may be noted that the Sanitary Record dated the 14th July 1904, contains a concise account of the sewage disposal of Hanley, a small town in Staffordshire. In that installation the filter-beds are designed to deal with a continuous and constant flow of 200 gallons per square yard in the 24 hours. It is believed that at some of the mills the filter-beds are at work for only about 16 hours a day. In these instance the area of filter-beds would require to be increased by one-third to make them equal in efficiency to the installation at Hanley. When the number of gallons to be dealt with, and the number of square feet to be allowed to so many gallons, are known, the aggregate dimensions of the filter-beds required can be immediately ascertained.

Recommendation of Committee determining size of filter-beds.

49. In view of the fact that the sewage is stronger than that dealt with in England, the Committee are agreed that the filter-beds should be designed to deal with only 150 gallons per square yard in 24 hours.

Recommendation that the effluent should be carried clear of the bank in pipes.

50. One other suggestion may be made. The Comittee are of opinion that the final filtrate should be carried by a pipe to some distance away from the bank and towards the middle of the river. [illegible] this means it can at once be mixed with the current; and there will be less risk of its being caught in eddies and remaining near the bank, so as to be objectionable to persons who are bathing.

Thanks of the Committee for assistance rendered.

51. The thanks of the Committee are due to the Mill-owners and their Managers for the courtesy with which they furnished every facility to the Committee for carrying on their enquiry, to the witness who at a considerable expenditure of time and trouble attended the meetings of the Committee at Writers' Buildings, and to Mr. James, Special Engineer of the Bombay Municipality, who furnished them with valuable information.

S. H. BROWNE, Col., I.M.S. ... *President.*

D. B. HORN ... } *Members.*
F. C. CLARKSON, Major, I.M.S. }

L. P. SHIRRES ... *Member and Secretary.*

The 29th December 1904. [*Calcutta Gazette*, January 4, 1905.]

CORRESPONDENCE.

To

The Editor of the Calcutta Journal of Medicine.

SIR,

Your notice on the Plague Resolution of the Bengal Government in the last November number of your valuable journal will be very useful to the public, and I hope the following remarks on the subject will be of some further help to your readers.

While no real remedy for the fatal malady, has yet been found the Government of Bengal has done well in publishing its valuable resolution on the preventive measures. Of these measures "the destruction of rats and mice." I have found to be of considerable service. During the winter of 1903-04 there was a severe attack of the epidemic all over Nagpur. We lived in a bunglow in the Civil lines surrounded on all sides by other bunglows all of which were more or less affected by plague. In all of, them rats died in numbers, and men died of plague in most of them which were not vacated in time. At this time all our friends and neighbours advised us to leave our bunglow. But we waited till some rats died in our house, for this being almost a sure preliminary sign, specially in Nagpur (C. P.,) for the approach of plague. Most of the people here left their houses whenever a rat died in them, and avoided the fatal disease. On the contrary those who neglected this precaution, after the death of rats, they lost some of the members of their houses from the attack of plague.

Fortunately, however, no rats died in our house during the plague-season, and we were not obliged to leave the house, nor suffer from plague. Now what was the reason that while all the adjacent houses were affected by plague, and our house, which was in the middle, was left free? A month or two before plague appeared in our quarter I killed most of the rats in our house, not for fear of plague, but to avoid their mischief. Before this I never knew or heard that killing of rats, is a preventive of plague. These creatures have something like a society among them. When some of them die in a house from plague or other artificial means, they fly in a body to neighbouring houses free from mortality among their kind. Thus they carry the fatal poison from one house to another and spread the epidemic far and wide just like men.

You are quite right in condemning the use of poisons such as "Rough on Rats" to kill rats specially in places affected by plague. The rats thus poisoned will die underneath the floors, over ceilings, and other retired corners of the house, and it will not be possible to find out their dead bodies for removal. This will rather add fuel to the fire or increase the spread of the epidemic. It will therefore be much better to kill the rats, and mice by some traps.

In page 451 of the same number of your valuable journal you have said "The general nature of plague is that it rarely attacks more than one person in the same house." Have you not heard of members of persons dieing in the same house from plague in the Burra Bazar and Jorabagan sections of the town of Calcutta? Here in Nagpur I have found many die in the same house, even in the Civil Lines, where the houses are far from each other, each house standing on big compounds of 3 to 6 acres of land.

Nagpur, C. P. }
26th January 1905. }

DOKARI GHOSH, L. M. S.

Acknowledgments.

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RAT AND PLAGUE.

It is generally accepted that rats communicate plague to man. How far the theory is true remains to be observed. To join with the common cry is not reasonable without a careful examination of the facts that are placed before us. The acknowledged truth is that rats are liable to be attacked with plague. Many other animals as pigs, monkeys, etc., share the same fate. Before entering into the whole question, we should know the different varieties of rats and their idiosyncracy for the attack.

The term rat is popularly applied to many murines. Specifically, it designates two varieties. "1. The English Black Rat (*Mus rattus*), and the Brown, or Norway Rat (*M. decumanus*). The former is a small, lightly built animal, about seven inches long, with a slender head, large ears, and a thin scaly tail, longer than the body. In temperate climates the colour is a bluish-black, lighter on the belly. This species is represented in warmer climates by the Alexandrian Rat (*M. Alexandrinus*, Geoff., better known as *M. rattus rufescens*), with a gray or reddish back, and white under-surface. By later naturalists it is considered as only a variety. The albino and pied rats, kept as pets, also belong to this species, which had its home in India and penetrated thence to almost every part of the world, driving out the native rats, and to be in its turn, exterminated by the Brown Rat (probably a native of China, where a similar species, *M. humiliatus*, is still found). The Brown Rat is much more heavily built than the Black Rat, grayish-brown above and white beneath; ears, feet, and tail flesh-coloured. Melanism often occurs, but such animals may be readily distinguished by ordinary specific differences from the true Black Rat. Length of head and body eight or nine inches long, tail shorter. Both the species are omnivorous, predacious, and extremely fecund, breeding four or five times in the year, the female producing from four to ten blind, naked young, which breed in their turn at about six months old. *M. fuscipes* is the Brown-footed Rat of Australia; *Nesokia bandicota*, the Bandicott, or Pig-rat, and *N. bengalensis* the Indian field Rat."

We know of the class Nesokia from Agassiz. It is a "murine genus closely allied to Mus. It contains five or six species of clumsily-built rats spread over southern Asia, from Palestine to Formosa, and from Cashmere to Ceylon."

Leaving aside the character of the *Nesokia bengalensis*, which resembles more with the Brown Rat than the Black, difference of opinion is observed with regard to the theory of destruction of the Black Rat by the Brown. The writer in the Encyclopædia Britannica, substantially agrees with the above description. There is an interest in the theory of the displacement of the Black Rat by the Brown. It is said that the cause of the disappearance of plague from Europe is due to the partial extermination of the Black Rat. On this notion, the destruction of the whole species of rats rests for practical use. The fact can not be denied that Black Rats still exist in Europe. Some persons in Germany assert that *Mus rattus* or the Black Rat is reasserting its predominance. The writer in the Encylopœdia Britannica denies this assertion. Be this as it may, the fact remains that there are the Black Rats in Europe and still plague has almost disappeared from the whole tract of the land. The insignificant attack of plague is not even in proportion to the existence of the Black Rat. The theory of the Black Rat communicating plague to man becomes questionable.

On the other hand we observe that in China there is the largest preponderance of the Brown Rat and plague. The species in that country "is believed to be a native of western China, where a wild race has been recently discovered so like it as to be practically indistinguishable." Thus the theory of the dissemination of plague by the Black Rat alone falls to the ground.

The next problem to solve is, whether, all the species of rats communicate the disease to man? This includes the consideration of the *Nesokia bengalensis.* From the oldest writers descriptions are found of the attack of plague among rats. They do not mention that rats communicate plague. The European idea of the attack has originated in modern time, based on a popular belief. For the reference, *Waqicat-i-Jahangiri* as translated in Elliot's History of India, serves the purpose. The Emperor Jahangir says: "In the tenth year of my reign (i. e., in 1614-15 A.D.) a dreadful plague broke out in many parts of Hindustan. It first appeared in the districts of the Punjab, and gradually came to Lahore. It destroyed the lives of many Mahomedans and Hindus. It spread through Sirhind and the Doab to Delhi and its dependent districts, and reduced them and the villages to a miserable condition. Now it has wholly subsided. I asked the physicians and learned men what was the cause of it, as for two years in succession the country had suffered from famine, and there had been a deficiency of rain. Some said that it was to be attributed to the impurity of the air arising from drought and scarcity; but some ascribed it to other causes. God knows, and we must patiently submit to His will."

The description of the attack of plague in mouse or rat is given by Nawab Muctamad Khan, a courtier of Jahangir, in his *Ikbal-Nama*: He writes: "When it was about to break out a mouse would rush out of its hole as if mad, and, striking itself against the door and walls of the house, would expire. If immediately after this signal the occupants left the house, and went away to the jungle, their lives were saved; if otherwise, the inhabitants of the whole village would be swept away by the hand of death. If any person touched the dead, or even the clothes of a dead man, he also could not survive the fatal contact. The effect of the epidemic was comparatively more severe upon the Hindus. In Lahore its ravages were so great that in one house ten or even twenty persons would die, and their surviving neighbours, annoyed by the stench, would be compelled to desert their habitations. Houses full of the disease were left locked, and no person dared go near them through fear of his life. It was also very severe in Cashmere, where its effect was so great that (as an instance) a *darwish*, who had performed the last sad offices of washing the corpse of a friend, the very next day shared the same fate. A cow which had fed up on the grass on which the body of the man was washed, also died. The dogs also, which ate the flesh of the cow, fell dead upon the spot. In Hindustan no place was free from this visitation, which continued to devastate the country for a space of eight years."

This observation shows that mouse (rat) is attacked before man. It does not mention that mouse or rat communicates the disease to man. What we observe now is that the attack on man and other animals may take place simultaneously or any one of them may take the precedence. When the writer has claimed his recognition for so much enquiry, it would not be safe to say that he laboured under defective observation.

Drs. George and John Thomson in their Treatise on Plague refers to the Old Testament. They say "The earliest historical record (1141 B. C.) noted of a connection between rats and plague is in 1 sam. V—VI and this connection has been frequently met with in many places. In the Himalayan villages the inhabitants look upon the death of rats as a signal to quit their houses and occupy a fresh village site, well knowing by experience that an epidemic of plague is presaged by this phenomenon." In I samuel v. 6, occurs the following: "But the hand of the Lord was having upon them of Ashod, and he destroyed them, and smote them with emerods, even Ashod and the coasts thereof." An annotator says thus: "The emerods is the same disease as that mentioned in Deut. xxviii 27; and such a distressing malady must have carried home the conviction to every Philistine that it was from the hand of Him whose indignation had been signally and emphatically expressed in the downfall and destruction of their idol. Hence their resolution to keep the ark of God no longer in their possession.

"To this sixth verse the Septuagint and the Vulgate add: 'And the cities and fields in the midst of that region produced mice, and there was confusion of a great dearth in the city.' In the next chapter there is mention made of mice in connection with the emerods; but on what authority or for what reason, these words were added does not appear."

In I samuel vi. 4 and 5 we find: "Then said they, What *shall be* the trespass offering when we shall return to him? They answered, Five golden emerods, and five golden mice, according to the number of the lords of the Philistines; for one plague *was* on you all and on your lords.

"Wherefore ye shall make images of your emerods, and images of your mice that mar the land; and ye shall give glory unto the God of Israel: peradventure he will lighten his hand from off you, and from off your gods, and from off your land."

The same annotator adds: "The mouse here spoken of is about the size of a large rat, and, as it feeds exclusively upon vegetable produce, its multiplication and increase could not be otherwise than extensively injurious to the fruits of the earth and other produce."

It will be seen that the connection between plague and rat was so much as both occurred in the form of pestilence. There is no trace of the suggestion that plague was attacking man and mice or the latter gave the disease tc the former.

(To be continued).

RIGHT OR WRONG?

Our Contemporary the Indian Homœopathic Review in its January number opens with a portrait of Dr. L. Salzer. It is well that he has given the picture of the known homœopathic practitioner, who, we are sorry to say, is suffering from a deranged brain. We really sympathise with the family of Dr. Salzar for his severe illness. Be this as it may, we find that our contemporary calls him L. Salzer, M.D. As far as we are acquainted with the facts of his medical status, we know that he is not an M.D. Will our contemporary be so good as to enlighten us when and from which university did he take his degree of M. D.? On question of principle the enquiry has become necessary. If we find ourselves wrong, it will be our duty to correct the erroneous impression.

In the same number, our contemporary says: "Dr. Salzer and the late Dr. Behary Lall Bhaduri did more perhaps to popularise homœopathy here than all others taken together."

It is impossible to understand the full significance of the above sentence. As far as we know neither Dr. Salzer nor Dr. Bhaduri did give any public lecture on homœopathy, as to popularise the system of treatment. We are as yet unaware of any fact that they introduced a new method of enquiry in the practice of homœopathy. The few lectures that Dr. Salzer gave in the homœopathic school of that time have been published. We are bound to ignore the existence of such schools as they were and are nothing but mockeries and bring a bad name to homœopathy. There, most of the students with their despicable knowledge of the English language are admitted; anatomy is taught from diagrams; physiological lectures find no existence; pathology is ignored. Homœopathy in materia medica and practice is the only thing that exists. Our contemporary can be proud of the existence of such schools. Perhaps, it is well known how much the students of these schools are respected by the public. A boy who fails in all his attempts for education finds the chance of being such a homoeopathic practitioner.

So far for the homoeopathic schools. As to the assumption of popularising homoeopathy, we find in another place: "Dr. Berigny and Babu Rajendra Dutt eager to get an entrance into public favor begging from door to door almost;" We do not know which of these statements is correct, either the first or the last, with regard to the fact of popularising homoeopathy. Being old inhabitants of Calcutta and having good acquaintance with the facts of the introduction of homoeopathy in this city, we are surprised that our contemporary draws inferences from imaginary perception. We can claim a better knowledge of facts with regard to homoeopathy than most of our colleagues. We knew Drs. Salzer and Bhadury long before than that can be claimed by our contemporary. In fact, it should be known that we possess the information which still remains unknown to many.

Our endeavour is to re-unite the homœopathic profession and not to create a division. We are obliged to point out the inaccuracies or wrong imaginations. The priority of the introduction of homœopathy rests with Babu Rajinder Dutt and Pundit Iswar Chandra Vidyasagar. They were attached to Dr. Sircar for his superior education and his bold acceptance of the truths of homœopathy in 1867. Indeed, he paved the way for other medical men to follow. His was the first conversion of a regular practitioner in India. Dr. Bhadury was his junior in the profession and had not these claims. For a full knowledge of facts we refer our readers to the Transactions of the International Congress of Homœopathy.

After all one fact is certain. The obstinate endeavour of our contemporary to ignore the good actions of Dr. Mahendra Lal Sircar, we are sure, will not be successful. History has recorded many events in indelible character the works of those who have strived for the cause of homœopathy. We have not the same feeling for Dr. Bhadury, as he was one of our respected friends, though senior in years. We will gratefully acknowledge the truth if our contemporary show us the way in which he popularised homœopathy. We know that he had a dispensary both for paid and unpaid patients, and wrote books in Bengalee on homœopathy. Besides these facts we are ignorant of his other attempts for the spread of homœopathy. If the practice of homœopathy and the writing of books in the Bengalee language be passports to applaud the extension of its province, then we surely admit that we are at a loss to understand the refined sentiment.

We again reiterate that let the dead past bury its dead. They were all noble men who worked for homœopathy. The simple question is, what have we done for homœopathy? To our shame, we must admit that we have done nothing. The time has come that we should do something for our internal consolidation. Setting aside our petty spites and jealousies, we earnestly wish that we should be united for a common effort to inaugurate a good period of work. We have appealed to our colleagues to have our necessities. Our combined assiduity will be able to achieve many desired objects. The next tenth of April will be the 150th Birthday Anniversary of Hahnemann. Let that be the rainbow of peace with us for our consolidation. We will feel happy if Dr. Pratap Chandra Mazumdar be able to reunite the scattered flock.

COMMON DISEASES AND THEIR TREATMENT.

IX.

(*Continued from last Number,* p. 15.)

Mimosa is লজ্জাবতী of Bengal. It has three species, Mimosa pudica, M. rubicaulis or M. mutabilis, and M. humilis. The leaves are taken for tincture. Dr. Mure has introduced the medicine from South America. He mentions the first and third varieties. It has inflammatory swellings of scrotum, hand and ankle, with redness, tension and lancination. Prostration accompanies these symptoms. Clarke writes: "The most notable symptoms were lancinations in the back and limbs, and 'swelling and redness of left ankle with tension and lancination.' The last symptom has been confirmed." It remains to be observed whether other inflammations, especially that of scrotum may have its beneficial effect.

Moschus has bruised pain over whole body: swelling of hands with shooting pains; pain like burning in toes or as if squeezed by short boots; burning pressure on tips of right toes; jerking pains in nails of two first toes as if they would suppurate, could not bear anything to touch them, could only walk barefooted on the heel; pain in nape of neck as if muscles were torn from their attachments; violent drawing in nape, unable to turn head; drawing pain from second cervical vertebra to shoulder; drawing pains in spine which extend into hip-joint, and there become so violent that he cries out; partly jerking, partly drawing pains in spine; acute pressure in sacrum and coccyx; as if caused by a dull instrument. These symptoms indicate that the muscles covering the whole vertebral column are affected. Constrictive tension and drawing jerking pains are its characteristics. Not only the back along the spine suffers from these pains, but also the muscles of the chest feel the constriction. Its other sphere is the pain in the last phalanges of fingers and toes, including the nails. Clarke remarks: "*Mosch is suited to spoiled, sensitive natures and hysterical women and men.*" Musk has not been used in other inflammations besides pneumonia, and laryngismus stridulus. We are in the dark whether it may prove successful in inflammations and congestion of muscles.

Murex produces contusive pains. They are confined to chest, hip and lumbar region, forearm, and thigh. The medicine mostly affects the female sexual organs, and we have sore pain in uterus.

Muriatic acid has sprained pain after writing with back bent; aching pain in back, as from having been bent double for a long time, or from a strain; bruised pain in all joints; swelling of extremities of fingers, with burning; swelling of knees; lancinations in tendo-Achilles, day and night, which hinder walking and sleeping; swelling and redness of extremity of toes, with burning.

Doubt is reasonably entertained whether Muriatic acid can be used in a case of primary inflammation. It is applied in cases of inflammation coming as a sequel in low conditions of health after long-standing febrile conditions. In inflammatory complications during or after fever, it can be fitly used. Burning is a characteristic of the medicine. So far it may be said that inflammations occurring in low conditions of health require its use whether in the presence or absence of burning.

Mygale or Mygale Lasidora Cubana is a large black Cuban spider. It has following symptoms :—Intense redness in streaks in course of lymphatics, from calf to body, with great anxiety, twitching of limbs; local inflammation extensive, from foot to knee, having a large violet spot which changed in a few hours to green. Clarke remarks, "The pathogenetic data of Mygale consist of a proving by a young lady and the effect of a bite on a man. In the latter case, inflammation ensued which spread along the lymphatics, violet and afterwards green discoloration." From these facts it appears that Mygale is a medicine for lymphatitis. As the inflammation of lymphatics generally does not confine within the specified limit but spreads into the surrounding tissues, it may be used in inflammatory swellings which owes its origin from lymphatics. Another noticeable fact is that the virulent poison of the Cuban spider caused the inflammation. The necessary conclusion is that any violent inflammation which is the product of a poison should have its aid. The supposition is that the poisons of the spiders act with less intensity than those of the serpents.

Naja tripudians include two varieties of snakes, *Cobra Gokhura* and *Cobra Kautia.* There are also intermediate varieties between the two kinds. The general characterstic of the Gokhura is white with variegated marks. The Kautia has black colour with concentric rings. There is also difference in the poisons of the two species. The Gokhura ejects yellow thick fluid. The Kautia gives out rather greenish poisons. The poisons are taken from the full grown species of the serpents, which have attained about the length of five or six feet. The best time to take the poisons is in the spring and the beginning of the summer season, that is before the commencement of the rains. During the rainy season they give out diluted poisons. The dilution is due to the imbibition of water. The quality is being deteriorated for that reason.

Another wellknown fact which affects the quality of serpent-poison is recorded by Higgins in his Ophidians. He observes with regard to Lachesis thus: " Just at the time when the snake begins to change to skin and enters into the state of semi-torpidity consequent upon this change, the poison loses its venomous principle, and what is still more singular, the gall loses its bitter principle and becomes sweet to the taste. The poison extracted from the reptile in this state is a milky, thick, viscous fluid, which soon separates itself into a white, ropy sediment, and a supernatant, transparent, slightly viscous fluid, showing no trace of acidity. Neither the sediment nor the colorless liquid alone or in combination causes death in pigeons or dogs, but a septicæmia is produced which is limited and not profound in its action. The poison continues in this condition until the state of torpidity ceases, and when the colours on the new skin are very brightly marked and distinct, the venomous principle is again restored to the poison and the bitter principle to the gall."

It is our practice to use the poison of the Kautia as recommended in the ancient sanskrit medical work the Charaka Samhita. It enjoins the use of the poison of *krishna sarpa* or black serpent. The experiments of Drs. Fayrer and Sircar support the statement of the Charaka that the poison of the Kautia or black serpent is more violent and rapid than that of the Gokhura which has rather a slow action. Dr. Mahendra Lal Sircar was the first practitioner to use the pure poison of the Kautia in homœopathic practice. He always took the poison in his presence directly from the snake procured by the snake charmers. The means generally adopted in this country is to make the serpent to bite on the dry leaf of palm wrapped round an ordinary concave shell which is called ঝিনুক (*Jhinuk*). The serpent in its attempt to bite the dry palm leaf perforates the leaf by the poison fangs and the poison is deposited in the concave shell to be immediately taken in a small bottle. No time is lost to mix the poison with glycerine. If time is wasted in transferring the poison to the bottle or if it is not immediately mixed with glycerine, the poison coagulates, after which any kind of solution is impossible either with glycerine, water or rectified spirit. The fact of the coagulation of the poison in contact with air points to a kind of chemical decomposition, which may be due either to the evaporation of some volatile principle or to any kind of unknown change. Be this as it may, the observation is certain that the poison taken out from the fangs of the serpent should be immediately mixed with glycerine. As for trituration, objection is raised on reliable ground that the coagulated product of the poison is an altered material and can not produce the exact morbid effect which is due to the real poison. Formerly, we could not get the desired effect from the poison of Naja tripudians. Now, without mixing the two varieties of the poisons, from Gokhura and Kautia, we do get the effect of Naja by using the fresh secretion from the fangs of the Kautia. It is a noticeable fact that we use the medicine in lower dilution.

In the market the snake charmers sell a yellow powder which is generally used. It is a combined product of the two varieties of poisons of the Gokhura and the Kautia mixed with mustard oil and dried in the heat of the sun. Its efficacy is doubtful. The Kaviraji *Suchikavaran* is a mixture of many medicinal products. They are Mercury, Sulphur, Lead, Aconite (Ferox or Napellus) and the poison of the Kautia in equal parts and made into paste in a mortar. This paste is soaked in the vapour of a composition of the biles of Rohit fish, hog, peacock and goat, in a well covered earthen ware. The name *Suchikavaran* is derived from the fact that the mixture should be used to the extent as can be taken up at the end of a needle. *Suchika* is needle and *Avaran* is ornament. It is the ornament of the needle.* The Kabiraji preparation is not equal to our simple Naja. It is far inferior in its action. Kabirajes use their preparation in the dangerous state of low fevers. We use the poison of cobra in cholera or other diseases which want to support the action of the heart and lungs.

It will not be an uninteresting study to know the classification of poisonous snakes. The following is by Captain G. Lamb, I.M.S., who is making a searching enquiry of snake poisons:—

I. Colubridae.

A. Sub-Family—Elapinae.

Genus Naja. 1. Naja tripudians (Cobra). India.

2. Naja bungarus (King cobra). India.

Genus Bungarus. 3. Bungarus Cæruleus (Common Krait). India.

4. Bungarus fasciatus (Banded Krait). India.

Genus Hoplocephalus. 5. Hoplocephalus curtus (Tigersnake). Australia.

B. Sub-Family Hydrophinae.

Genus Enhydrina. 6. Enhydrina Valakadien (Common sea snake). India.

II. Viperidae.

C. Sub-Family—Viperinae.

Genus Vipera. 7. Vipera Russellii (Daboia). India.

Genus Echis. 8. Echis carinata (Phoorsa). India.

D. Sub-Family—Crotalinae.

Genus Trimere surus. 9. Trimere surus gramineus (Green-pit viper). India.

Genus Crotalus. 10. Crotalus adamanteus (Californian Rattle snake). America.

This classification principally includes the Indian snakes, with which we are interested. According to the experiment of Dr. Mahendra Lal Sircar the poison of Vipera Russelii which is known as Boa wrongly called Daboia (চন্দ্রবোড়া) proved to be the worst. A full-grown cock died within five minutes from its bite. On the other hand, a full grown cock lives about twelve hours after the deathly cut of a full grown Cobra Kautia. Depending on this fact, it is desirable that provings of the poison of Vipera Russellii should be undertaken by reliable medical practitioners. A short proving has been made, the result of which will be published in due course. Clarke says of Naja thus: "It was introduced into homœopathy by Russel and Stokes, who made the first provings along with some forty other provers, including Gillow, Pope, and Drysdale. It is rather remarkable that with so many able provers *Naja* should not have attained anything approaching the place of importance occupied by *Lach.* Nash suggests this may be due to the fact that many of the provings of *Lach.* were made with the 30th potency, whilst those of *Naja* were with low potencies." The more use of Lachesis than Naja is due to the fact of the introduction of Lachesis long before that of Naja. Lachesis was introduced by Hering in 1835 in the Archives, and in 1837 into our materia medica. Dr. Rutherford Russel, who with Dr. Stokes carried on the provings of Naja, contributed the account of these experiments in the eleventh and twelfth volumes of the British Journal of Homœopathy, that is, in 1853 and 1854. The action of the two serpent-poisons are almost alike. The extended use of Lachesis has thrown Naja in the shade. In India cases of failure of respiration or heart's action is mostly treated by Naja and not by Lachesis. Success has been gained by Naja in a few cases, as has been shown by Major Deane in his cases of plague. In cholera a few laurels have also been gained. The fact is that an extended proving and clinical use of Naja has become necessary.

With regard to the use of Naja in inflammatory swellings we have a few symptoms. They are: Pain in neck and back; pain between the shoulders as if in spine, afterwards involving scapulæ, worse when moving arms; dragging sensation in spine between shoulders; aching in loins; acute pain in small of back; aching in ankles, lower part of thighs, wrists, and shoulder-joints, bruised on waking; burning pain in wrist, and he hung down his arm, from which a few drops of blood fell (from the bite); swelling of hand and thumb, of hand and arm with spots, of bitten hand and of arm and breast of same side with livid spots; pain in finger and thumb-nail (where virus has entered) running up arm; pain in bitten toe, ascending to top of thigh, then pain in belly, which was tense and swollen; swelling of body; local inflammation; large pimples on inflamed base. It may be said that Naja has a place in those inflammatory swellings where Lachesis is applicable.

Natrum muriaticum has a peculiarity in medicinal action, serving both as food and drug. The power of both is manifest. Without Common Salt our life is impossible to exist. Hempel and Arndt record important facts with regard to its use as food. They say: "The well-known agent is absolutely necessary to the development of some of the most important properties of the blood, its fluidity, its stimulating qualities, and its own preservation. Lord Somerville, in his address to the Agricultural Society of London, alluded to an ancient law in the penal code of Holland, which obliged criminals to eat bread without salt. The effect of this privation was the development of intestinal worms which literally devoured the poor victims.

"We know that salt is indispensable to the preservation of our domestic animals. Wibmer informs us, upon the authority of Moglin, that domestic animals died in the northern provinces of Brazil, unless they were fed on certain portions of salt. According to Roulin, female animals, in the republic of Columbia, lost their fecundity and the flock soon perished, unless they found salt in the plants, water or ground."

Further on, "Salt will be found adapted to conditions resulting from a cachectic deterioration of the lymph, or from a scorbutic disorganization of the blood. That this is the principle curative range of salt may be inferred from the effects which the chronic abuse of salt has been known to produce. Not to speak of the ravages which the continued use of salt-meat produced on ship board, where many other circumstances concurred in the development of this frightful destruction of human life, we may content ourselves with recording the simple facts which physicians have observed in their private practice. Frank, for instance in his excellent magazine, quotes the following symptoms as resulting from the excessive use of salt:

"A literary man was in the habit of consuming excessive quantities of salt with his food. When in the full vigor of his manhood, he was only troubled with a peculiar *eruption upon the skin* and a troublesome *burning during urination*; at a later period of his life, his *eyes* became excessively sore, with considerable swelling of the red, disgusting looking lids, and continual secretion of a saltish, corrosive fluid which irritated the adjoining parts.

"This gentleman's housekeeper had been living in a family who were in the habit of salting their food very much. After her first confinement she experienced the most excruciating pains at the nipple whenever she attempted to nurse her infant; this led very shortly to *inflammation, suppuration* and disorganization of the nipples. After her second confinement the same symptoms developed themselves, compelling the patient to refrain from nursing; the same trouble arose from her third confinement.

"In the meanwhile the husband of this woman was attacked with an *herpetic eruption on the cheek*, which only disappeared after he discontinued the excessive use of salt to which he was addicted.

"This change in the seasoning of his food with salt had another unexpected effect upon his wife. After every subsequent confinement her nipples remained perfectly sound, so that she was able to nurse her infants from beginning to end, without experiencing any trouble.

"Fank reports another effect of the abuse of salt in a man of fifty-seven years. His general health was good, but he was attacked with an *inflammation* in the middle of the left tibia which terminated in profuse suppuration and ulceration, involving even a considerable portion of the calf. Gradually the ulcer began to secrete a corrosive ichor. After many ineffectual attempts to heal the sore, this was finally accomplished without any difficulty by simply reducing the amount of salt consumed with the food to a moderate quantity; a watery infusion of chamomile was at the same time applied to the sore externally.

"Fank states it as a fact, that infants who were nursed by women who are in the habit of consuming excessive quantities of salt with their food, were attacked with *soreness* of their private parts, of the axillae, and of various glands. The soreness was speedily removed by abstaining from the abuse of salt."

Again, "Christison speaks of a man who killed himself by swallowing a pound of salt; he died with all the symptoms of violent gastro-enteritis. For some of the conditions which are incidental or preliminary to gastro-enteritis salt may be used as a remedy."

The above facts show the provings of the Common Salt, and the explanation of the curative powers of dilutions.

(To be continued.)

EDITOR'S NOTES.

Tribute to Dr. Mahendra Lal Sircar.

The Vice-Chancellor of the Calcutta University on the occasion of the last Convocation said :—

Dr. Mahendra Lal Sircar, C.I.E., M.D., D.L., was born of poor parents, in 1833, in an obscure village in Bengal. He lost both his parents while yet young. He was educated in the Hare School, Calcutta, where, in 1850, he obtained a Junior Scholarship. This enabled him to pass to the Hindu (afterwards Presidency) College, where he soon distinguished himself. In 1855, he entered the Medical College where he remained for 6 years and obtained medals, prizes, and scholarships, in various subjects. In 1863, he went up for the M. D. Degree Examination and stood first. He then commenced to practise Medicine, and in the early sixties, though quite a young man, he succeeded in securing a distinguished position as a practising Physician. Amidst his numberless professional engagements, and his literary and scientific labours, he did not for a moment forget, what he had long been impressed with, that his country could only be regenerated through the cultivation of Science. His conviction was, to use his own words, that "the only method by which the people of India could be essentially improved, by which the Hindu mind could be developed to its full proportions, was by the cultivation of the Physical Sciences." He urged the establishment of a Scientific Association for the encouragement of scientific research among his countrymen, and, after many years of hard labour and great self-sacrifice, he succeeded, in 1876, in starting the present "Indian Association for the Cultivation of Science" under the patronage of the then Lieutenant-Governor, Sir Richard Temple. The Association has now made considerable progress, and has a well situated local habitation, a good lecture hall, and a well equipped laboratory. Dr. Sircar was appointed Fellow of the Calcutta University in 1870, and was for some years President of the Faculty of Arts. He was appointed Sheriff of Calcutta in 1887 and was a Member of the Bengal Legislative Council from 1887—1893. In 1883, in recognition of his work, he received the decoration of C.I.E., and in 1898 for his services in the cause of education generally the University of Calcutta conferred upon him the degree of Doctor in the Faculty of Law. Dr. Sircar was a man of remarkable personality. The strongest trait in his character was his sturdy independence, joined to his unflinching devotion to truth and duty.

Rai Surya Kumar Sarbadhikari Bahadur, G. M. C. B.

Dr. Surya Kumar Sarbadhikari died on the 6th December last at Madhupur, in his seventy-second year. He was the oldest practitioner of the dominant school, having taken his degree in the pre-university days. They had then the only qualification of G. M. C. B. or Graduate Medical College, Bengal. Only another gentleman of that stock still remains to show the connecting link between the old and the new practitioners of medicine. He is Babu Deno Bandhu Dutt of Ramkristopore, Howrah. In 1851 Dr. Sarbadhikari entered the Medical College and came out of it with many honours in 1856. Practising the healing art, he was kind to all who asked his help in their distress.

Dr. Sarbadhikari entered the service of the government, on board the "Fire Queen," a troop ship. In 1857 he was appointed medical officer in Ghazipur. During the dark days of the mutiny, his services were required for the British army especially in their operation against Babu Kumar Sing of Jagadishpur. The rebel leader is made famous by General Kaye in his History of the Sepoy Revolt. Dr. Sarbadhikari had an arduous task to perform. He associated with Sir Joseph Fayrer when he was with General Havelock on his march to Lucknow. After these energetic services he resigned his appointment and settled for private practice in Calcutta.

With homœopathy he had a touch. He was above the general antipathy of the old school towards the new. He was not reluctant to try a few homœopathic remedies in selected quarters.

With the noted family tradition, he leaves behind him a large progeny of eight sons, two daughters, twenty-eight grandsons and seven great grandsons.

It may be said that the Sarbadhikaris are a prolific Hindu family.

Infant Mortality.

The Infants' Health Society has published a pamphlet entitled "The Present Conditions of Infant Life, and their Effect on the Nation," which directs attention to the almost complete failure of our present method of rearing the infants of the working class. In the poorer parts of the larger towns and cities it is not uncommon for nearly *half* the children born to die in infancy. The dominating cause of this appalling mortality is the improper feeding of the infant. *Nature*, December 8, 1904.

Microbe of Small Pox.

DR. W. E. DE KORTE, at a meeting of the Pathological Society of London on November 15, described what he believes to be the parasites of small-pox and vaccinia. In the lymph of the eruptive spots in both these diseases he has detected bodies measuring about 1/2500 inch in diameter, amœboid, and containing refractile granules ; these he regards as amœboid protozoa. They are extremely delicate, breaking up and disappearing on all but the gentlest manipulation, and on attempts to stain or preserve. They seem to be very similar to the bodies described by Funck some years ago under the name of *Sporidium vaccinale.*—*Nature,* December 1, 1904.

Dakhyl v. Labouchere.

This was an action for damages for libel by the plaintiff, a medical man with foreign qualifications, against the editor of *Truth.* The plaintiff had acted as medical adviser to the Drouet Institute for the Treatment of Deafness. *Truth* described him as "a quack of the rankest species who had left the Drouet gang in order to carry on a 'practice' of the same class on his own account." At the trial before the Lord Chief Justice £100 damages were awarded. On appeal a new trial has been ordered on the grounds of mis-direction in that Lord Alverstone directed the jury to find the words libellous whereas he should have left it to them to say whether they were libellous or not. An important pronouncement by the Master of the Rolls was that a man may be fully qualified to practise medicine and yet may be fitly termed a quack if he claims power to remedy conditions which are irremediable.—*Lancet,* December 31, 1904.

Water Purification.

The December number of the *Century Magazine* contains a most interesting account, by Mr. G. H. Grosvenor, of the new method of purifying water—both in small quantities and when stored in large reservoirs—by means of blue vitriol (copper-sulphate). It has long been known that copper is fatal to bacteria, but the fear has hitherto been that the amount required to effect the destruction of such organisms would likewise be injurious to man. Dr. G. T. Moore has, however, announced in an American official publication that he can employ copper in such a diluted form as to be quite harmless to the higher forms of animal, and yet sufficiently potent to destroy the germs of cholera and typhoid, as well as mosquito larvae, in a few hours. The method of introducing the copper-salt into the water is fully explained in the article. It may be added that the treatment is stated to be equally efficacious and safe for sterilising milk. As an illustration of the effects of copper in destroying bacteria, it is mentioned that such organisms are never found on copper coins, although abundant on those of silver, and it is mentioned that artisans in copper-works are immune to bacterial diseases. Whether we have been wise in abolishing the old-fashioned copper tea-kettle is one of the questions raised by the new operations.—*Nature*, Dec. 15, 1904.

Toilet of the Anus.

Mr. A. G. Miller read a communication entitled "The Toilet of the Anus." He drew attention first to the risk of carrying infection to the various parts of the body by the hands and clothes from an insufficiently cleansed anus. He then described a simple method of cleansing the anus. He pointed out that any method of cleansing caused contamination of the hands and that, therefore, careful and thorough cleansing of the hands and especially of the nails was necessary also. Mr. Miller drew attention to one or two affections probably due to want of proper cleanliness, as pruritus ani, abscess, fissure, and piles. In regard to the last he advocated the use of injections of a few ounces of cold water as well as washing after defecations as an excellent prophylactic.—Dr. W. Allan Jamieson said that he was in the habit of advising patients to carry with them a box containing a sponge for the purpose of washing the anus. He had found that patients obtained marked benefit in pruritus ani from the injection into the rectum each night of a wineglassful of warm thin starch to which had been added two drachms of liquor bismuthi. This was retained during the night and was markedly soothing in effect.—Dr. J. O. Affleck referred to the fact that nurses were not in the habit of cleansing the anus of patients thoroughly and said that this was especially important in cases of typhoid fever or cholera.—Dr. W. Taylor described a douching apparatus which could be easily fixed to the water-closet.—Dr. H. M. Church referred to the necessity of thoroughly cleansing the nozzle of the enema syringe.—*Lancet*, December 17, 1904.

The Parasites of Small-pox, Vaccinia, and Varicella.

The parasite of vaccinia and variola is described as an amœboid organism about $\frac{1}{2500}$th of an inch in diameter its protoplasm containing highly refractive greenish particles regarded by Dr. de Korte as spores, which in many cases render the nucleus invisible. On the warm stage in the case of the amœbæ found in human vaccine lymph there is very active amœboid movement, while in the case of that from small-pox lymph although alteration of contour occurs no pseudopodia have been seen. In glycerinated calf lymph large amœbæ are to be observed which are regarded by Dr. de Korté as encysted forms. The amœbæ can best be studied in hanging-drop preparations of the lymph itself, and since they are very easily destroyed by the manipulative processes required for staining they may not be found in stained preparations, although they are capable of being stained. Dr. de Korté discusses the possibility that the supposed organisms may be leucocytes and negatives it among other reasons because they persist in the lymph for as long as six months, whereas leucocytes in human blister-fluid disappear after 14 days even though kept at the body temperature, which would hardly seem a very cogent reason in the absence of details of the origin of the blister fluid or of information of the duration of life of leucocytes in vaccine or variola lymph. Dr. de Korte states that no multiplication of the amœbæ by direct division and no sexual reproduction have as yet been observed, and then writes that he hopes shortly to publish a paper on a method of cultivating the organism *in vitro,* statements which are something difficult to reconcile. A protozoon or sporozoon has by several observers been described as occurring in the lymph of vaccinia and variola and has been regarded as the *contageum vivum* of these diseases, although the proofs seem in all cases to be incomplete. Quite recently the same claim has been made in reference to scarlet fever. The observations are therefore of interest but it would seem to be wiser to suspend judgment until the further details of the life-history of the organisms promised by Dr. de Korte are published.—*Lancet,* Dec. 24, 1904.

Spontaneous Rupture of the Heart in an Insane Patient.

By H. Kerr, M.D. Glasg.,
Assistant Medical Officer to the Bucks County Asylum.

This is a rare occurrence considering the frequency of degeneration of the heart muscle in the insane. According to the returns of the causes of death in the reports of the Commissioners in Lunacy for the years 1902 and 1903 it occurred nine times in 18,601 deaths and of these four cases were those of males and five were those of females, showing that sex has little to do with its incidence.

In the present case the patient was a man, aged 76 years, who died in the Bucks County Asylum after 14 months' residence. Mentally he was somewhat depressed and suicidal on admission, his condition passing into one of mild dementia. Physically he was rather feeble but stout and flabby. The pulse was regular but weak, the heart sounds were feeble and distant in character, and cardiac dulness was considerably increased. There was nothing of importance in the subsequent history of the case and the patient appeared as usual on the night of his death. He was found dead on the floor of his room, having apparently got out of bed and collapsed.

At the post-mortem examination the pericardium was found to be much distended with blood-clot and fluid. In the heart a small tear was found in the left ventricle, anteriorly, at the lower end near the apex in the long axis of the organ and plugged with blood clot. Internally the tear was found to be somewhat smaller than externally. The heart was much hypertrophied (weight 18¾ ounces), more especially the left ventricle, the muscle was soft, fatty, and very friable, while the valves and coronary arteries were atheromatous. The immediate cause of the rupture could not be determined, the factor of extra strain or stress being practically eliminated.—*Lancet,* December 31, 1904.

Personal Identification.

During the present year two cases bearing on the question of personal identification have aroused considerable interest. That relating to Mr. Adolph Beck, who was twice convicted at the Central Criminal Court and once served a long term of penal servitude, stands forth as a striking instance of miscarriage of justice. There was false identification in almost every particular. Reviewing all the evidence as regards the physiognomy of Mr. Beck and the man Smith, for whom he was mistaken, it is difficult to understand how they could have been considered one and the same man except for the fact that Mr. Beck was not well known to the persons professing to identify him, for Mr. Beck was of fresh complexion and had brown eyes. The marks on the body of each were in the main distinctive and one in particular was absolutely characteristic. Nothing short of gross negligence and blundering obtained at every stage of observation. The case of Donovan and Wade, who were recently convicted, sentenced, and executed for the murder of an old lady in the East of London, differed materially from the foregoing in that the identification was by individuals who had known them by sight for considerable periods. That both criminals were in, and near, the house of their victim at or about the time of the tragedy was amply proved. Nevertheless, it is doubtful if a conviction would have been obtained had there been reasonably trustworthy testimony to support the plea of an alibi. The amended criminal law allows a person indicted for murder to give evidence on oath on his own behalf. Neither Donovan nor Wade dared to face the ordeal of cross-examination. The refusal of a prisoner to go into the witness-box must not be directly commented on to his disadvantage; at the same time the fact is bound materially to influence the minds of the jurymen who have to pronounce him innocent or guilty. In a recent leading article we took occasion to suggest methods by means of which the risks of mistaken identity would, in our opinion, be considerably reduced.—*Lancet*, Dec. 31, 1904.

Remarkable Trials for Murder.

A trial for murder, recalling in many of its features the Dougal case, was recently held in Ireland. A man named Fee was charged with having killed another and burying his body in a manure heap where it lay undiscovered for many months. In spite of advanced decomposition the tissues in some measure had been preserved by lime so that it was possible to observe a vertical cut in the throat similar to that inflicted by pig killers. Fee's occupation had given him considerable practice in this method of despatching animals. The case is remarkable in that on two occasions the jury disagreed, while so convinced were the prosecuting authorities of the guilt of the accused that they refused to enter a *nolle prosequi.* At the third trial a conviction was obtained. The death penalty was carried into execution.

An extraordinary case was tried at the Durham assizes before Mr. Justice Grantham on July 16th. A pitman named Breeze, aged 21 years, had lodged with another pitman and his wife named Chisholm. He appears to have become enamoured of the woman who told him that her husband was jealous and added, "I wish I was dead" The prisoner replied, "Shall I kill you?" and immediately strangled her. He gave himself into custody. At the trial he protested his guilt and said that he would like to put the rope round his own neck. Previously to the tragedy Breeze had borne a good character. He was an energetic football player, a non-smoker, and a teetotaler, antecedents strangely at variance with those commonly associated with the commission of deadly crime. Medical evidence was called to prove that he was fit to plead and having pleaded guilty he was as a matter of course condemned. The case was evidently on the borderland of impulsive insanity and gross moral depravity. It was one in which medical testimony as to the state of the prisoner's mind at the time he murdered his victim, could not be invoked but it seriously raises the question whether the law relating to criminal responsibility should not be more comprehensive and the pleadings in defence allowed to be more elastic.—*Lancet*, December 31, 1904.

Cases of Poisoning.

From the numerous instances of poisoning recorded of late a few may be selected for special notice. In the *Journal of the American Medical Association* Dr. W. J. Stone gives an account of an interesting case of poisoning by nitrobenzol. A man, aged 22 years, was taken seriously ill at 12.30 A. M. At 3.30 he was in a state of stupor and collapse; his eyes were glazed and his lips, ears, and fingertips were cyanotic. The corneal reflex was absent. At 4.45 slight convulsions occurred and soon after death ensued. At the necropsy the feet were found to be coloured black. The urine contained albumin and the kidneys were in a state of acute desquamative nephritis. There were cloudy swelling and fatty degeneration of the liver cells. It was stated that on the evening preceding his death the man had put some liquid blacking on his shoes. The shoes, and also the blacking, smelt not unlike oil of bitter almonds and each contained nitrobenzol, the fatal dose of which is about one gramme.

An inquest was held at East Grinstead on the body of an aged man who had succumbed to the poisonous effects of helleborus niger, which was intended for application to the skin but which was swallowed in mistake for a liquorice powder. 20 minutes after the poison was taken he felt great pain in the stomach and soon became collapsed from paralysis of the heart centre. Consciousness remained to the end which came in two hours. Hellebore acts upon the heart like digitalis and also on the nervous system. A case of poisoning by the plant is recorded in The Lancet of July 26th, 1856. p. 100

In the *Scottish Medical and Surgical Journal* for December, 1903, Dr. J. Stuart Rose reported two cases of poisoning by picric acid. In the first case, that of a boy aged nine years, picric acid in the proportion of 30 grains to one ounce of vaseline was applied to scalded surfaces on the cheek and flank. Three days later he was drowsy. There was slight icteric tint of the eyes and the face and the palms were a little yellow. The pulse was 120. On the next day he was still drowsy and vomiting occurred. The temperature was 101·2·F. On the fifth day there was moderate diarrhœa. The whole skin was yellow but mostly on the face, the palms, and the soles. The hair was a deep yellow at the border of the scalp. The urine contained albumin. It was of a dark port wine colour but contained no blood or bile pigment. There was a bright red blotchy general eruption. The symptoms reappeared on reapplication of the picric acid. In the second case a man aged 45 years applied picric acid to a scalded skin. In four days the skin and the conjunctivæ were yellow. In six days the urine was as described above. There were slight diarrhœa and headache. In each case the preparation was too strong. A 1 per cent. solution can be used without bad results.

We have again been induced to comment strongly on the evil effects of inhaling tobacco smoke and to insist that the results are due to carbon monoxide rather than to the generally assumed cause—nicotine. One ounce of tobacco smoked in the form of cigarettes is equivalent to a fifth of a pint of pure carbon monoxide. If two or three mouthfuls of tobacco smoke be passed through diluted blood the latter becomes bright pink and gives the spectrum of carboxyhæmoglobin.

Several interesting additions have been made to the literature of poisoning by illuminating gas. In the *Boston Medical Journal* Dr. F. Holyoke narrates a case of attempted suicide by inhaling this gas which consisted of two parts of coal gas and one part of water gas. There was sweating. The pupils were dilated. The face was cyanotic The limbs were relaxed. The pulse was imperceptible and the cardiac beat was 140 per minute. Respiration was slow and gasping. There was a naphtha-like odour of the breath up to the fourth day. The temperature was subnormal till the third day. Consciousness returned on the second day. The muscles of the left leg were paretic for several weeks. In the *Dublin Journal of Medical Science* Professor

E. J. McWeeney gives the history of several cases of poisoning by illuminating gas and points out that fatalities from this cause have been more numerous since 1900 when the proportion of carbon monoxide in gas was raised from 6 to 16 per cent. In one instance carbon monoxide was present in the blood to the extent of 73 per cent. of its volume. 2 per cent. of carbon monoxide in air causes headache, giddiness, and muscular prostration, while 4 per cent. is fatal. Dr. Staehelin in a paper read before the Royal Society gives the results of a series of experiments to determine the poisonous value of benzene in coal gas. In frogs motor phenomena were traced to the action of benzene. A small percentage of benzene produced no acute or chronic poisonous effects when inhaled by rabbits. It was suggested that in man minute quantities absorbed by the lungs are rapidly oxidised and secreted as an aromatic sulphate and that the poisonous action of coal gas on mammals was due solely to carbon monoxide. Mr. A. Wynter Blyth supports Vahlen's contention that warm-blooded animals and frogs die more rapidly in coal gas than would be expected from its proportion of carbon monoxide.

Mr. Leslie Roberts gives in the *British Journal of Dermatology* the effects of the double poisoning by antimony and lead from the use of the linotype machine. A man, aged 29 years, had pains in the limbs, tenderness of the fingers, constipation, excessive sweating, muscular tremors, pink discolouration of the palms and the fingers, and faint papular eruptions on the thenar and the hypothenar eminences. Lead was detected in the urine. There was no arsenic in the linotype metal.

On the subject of Wasp and Bee Stings Dr. Phisalix in a communication to the Academy of Sciences, Paris, states the results of experiments conducted by him. Sparrows were found to be very susceptible; they suffered from paralysis, choreic movements, and respiratory failure. Dr. Phisalix believes that there is a convulsive, a stupefying, and a locally irritative principle in the poison of wasps and bees. A fatal case was reported in the *British Medical Journal*, Nov. 5th, 1898, p, 1429. In a case recorded in The Lancet of Oct. 26th, 1901, p. 1120, there were general urticaria, nausea, vomiting, and some prostration. Idiosyncrasy is a factor in some instances. Brouardel mentions the case of a man stung by a bee. He recovered after an attack of syncope. Two years later he was again stung when he died.—*Lancet*, December 31, 1904.

CLINICAL RECORD.

Foreign.

AUSTRALIAN BLUEBELL (*WAHLENBERGIA GRACILIS*) IN A CASE OF DEAFNESS.

By Erskine C. White.

This plant belongs to the natural order Campanulaceæ. The following case illustrates its action :—

A gentleman, æt. 72, for three years troubled with increasing deafness, complained of intense pains in head and back of neck, running down the left side of the neck, worse in sinew. The attacks of pain were periodical. His friends have to shout to make him hear. He is of cheerful, firm, hearty disposition, abundant hair and beard : reads with glasses ; has good appetite ; is a total abstainer. He has had heart strain from a fall on a fence. Is constipated.

For three years I gave, off and on, usual remedies for constitution and deafness.

No results, or merely temporary.

Gave *Wahlenbergia gracilis* 3x (from similarity to English Bluebell).

Pains in head increased (from three doses of three drops a day).

Second week, pains in head insufferable. Omit doses one week.

One dose of No. 100. Hearing completely returns, third week.

Hears as well as twenty years ago.

No return of deafness.

Waha. acts profoundly on stomach and bowels.

I selected the Australian Bluebell from its slight resemblance to the English bell, on the line of the "Bell" in botany having an affinity for the ears, after Dr. Cooper's success with the Bluebell.—*Homeopathic World* October 1, 1904.

CARBO VEGETABILIS IN CHRONIC INDIGESTION.

I recently received a visit from an elderly lady, who stated that she had for years been suffering from chronic indigestion. There was much flatulence present, and heartburn was a very prominent symptom. She also complained that she suffered from severe headaches, and was in a state of general debility. The flatulence distended the stomach, causing great oppression and palpitation. The breath also was very offensive. I advised her to take a three-grain powder of *Carbo vegetabilis* lx trituration three times daily. Upon seeing her again a few weeks afterwards I learned that she had much improved, and that the symptoms had greatly ameliorated. She continued the treatment on my recommendation, and at the end of six weeks all the distressing symptoms had entirely disappeared. She, however, kept on taking one of the powders night and morning for a further period of three weeks, and afterwards one occasionally to prevent a recurrence of the trouble. *Carbo vegetabilis* is admirably adapted for treating that form of indigestion so common to the aged, in which flatulence is a prominent symptom. In such cases, palpitation being one of the principal symptoms (consequent on flatulent distension of the stomach), the patient often considers that he or she is suffering from organic heart disease. In all such cases a course of *Carbo vegetabilis*, faithfully persevered with, will cause all these unpleasant symptoms to disappear, and dispel the belief that the patient is suffering form cardiac trouble. It must, however, be borne in mind that in all such cases there is a tendency for the trouble to recur, that a dose or two is not sufficient to effect a cure, and that the medicine must be persevered with to do good. I give this warning not unnecessarily, as I have found in my experience that the remedy is often dispensed with and substituted for another drug just at the time when it is commencing to act beneficially.—*Homœopathic World*, Feb. 1, 1905.

PHOSPHORUS IN A PAIN IN UPPER PORTION OF LEFT LUNG.

The value of *Phosphorus* in speedily removing pain in the lungs is now well known. It has proved itself to be of priceless value in the treatment of both chronic pneumonia, pleuro-pneumonia, and broncho-pneumonia, as well as in chronic bronchitis and other chest troubles. Even in the early stages of pulmonary consumption it is often indicated, allaying the tickling in the throat, relieving the congestion, and quieting the cough. A young man (27), whilst out taking a walk one afternoon, suddenly felt a severe pain in the upper portion of the left lung, just underneath the shoulder-blade. It was sharp, and greatly aggravated by inspiration, and accompanied with a sense of heat. There was no cough or other prominent symptom, only the severe pain, as described above. He was given 2m doses of *Phosphorus* 1x on sugar every three hours, and on waking the following morning, although the pain had not left him altogether, it was less severe. By the following morning it had entirely disappeared. The effect of the medicine was permanent, as the pain did not return, although several years have elapsed in the meantime.—*Homœopathic World*, Feb. 1, 1905.

Gleanings from Contemporary Literature.

A NEW THEORY OF THE ORIGIN OF SPECIES.

By A Dastre.

Nearly half a century has elapsed since the appearance of Darwin's work "On the Origin of Species by Means of Natural Selection." It is unnecessary to recall the commotion which that publication produced and the effects, which followed. It was the signal for a profound revolution affecting the natural sciences, secondarily other sciences, and even the mental attitude of individuals. The idea of the evolution of living forms, of their descent, or rather of their transformation, already advanced by Lamarck and Geoffroy Saint-Hilaire, was rescued from the oblivion or the indifference in which it had hitherto remained and was imposed, in a manner, on almost the whole scientific world. At present it is accepted with but slight opposition. It is, to be sure, only an hypothesis; but, as it is the only one that has any rational basis, it becomes, because of that fact, almost a necessity. As M. Yves Delage says:

"If there were a scientific hypothesis other than descent by which the origin of species could be explained, a number of naturalists would abandon, as insufficiently demonstrated, the opinions which they now hold."

This may be true, but there is no other scientific hypothesis, and the naturalists of to-day, willing or not, are transformists—that is to say, they are persuaded that living forms are not unrelated to each other, invariable, isolated, brought into existence by special acts of creation, and without any bond of union between them, but that they are, on the contrary related—that is to say, derived one from the other.

Darwinism did not, however, consist merely in an affirmation of transformism, for this had already been advanced prior to Darwin. Transformism certainly arose from the application to the natural sciences of the idea of "continuity," introduced into science by the mathematicians of the eighteenth century. We may thus explain the course taken by that idea as well as the variations which it assumed. The mathematicians passed it on to Buffon, who was originally a geometrician and who entered the Academy of Sciences as such; he in turn transmitted it to Lamarck, who was one of his intimate friends, and from him it passed to Geoffroy Saint-Hilaire. It was however, the illustrious English naturalist who first explained the mechanism by which, according to him, the transformation of one species into another might be effected, thus producing a continuity of living forms. This mechanism is natural selection.

Now it appears that while Darwin succeeded in establishing the idea of continuity of living forms by means of generation—that is to say, transformism—he was much less successful as regards the means which he proposed. To speak plainly, he failed. There are but few naturalists at the present time who attribute to natural selection any role whatever in the filiation of species. As has been remarked by Herbert Spencer, it is not in this way that truly specific characters can be acquired. Besides, when once acquired, they could certainly not be fixed by heredity. It is some ten years since anyone has held to the fixed heredity of characters acquired by a living being in the course of its existence, or at least during ten years past that idea, formerly admitted without opposition, has been fiercely attacked and denied by naturalists of great standing, such as Weismann, Pfluger, Naegeli, Strasburger, Kolliker. His, Ray-Lankester, Brooks, Meynert, Van Bemmelen, and others.

A Dutch naturalist, Hugo de Vries, who has a wide reputation among the botanists of our time, has just given the finishing stroke to the theory of natural selection, already much shaken, and has proposed in place of it another hypothesis which he calls "the theory of mutation." The name in itself is not very significative and needs to be explained. We shall do that presently. The doctrine is founded on observation and experiments which by the sagacity, long and patient effort, and careful criticism of their author deserve to be ranked with the admirable observations of Darwin. On the other hand, it has been most favorably received by many naturalists. For these two reasons the scientific public is obliged to take it into consideration, and at least, to become acquainted with it.

I.

Every new being resembles the ones from which it ascended, considering those in the widest sense. We say—and it is only a form of speech—that it owes this resemblance to heredity. Heredity, then, is simply the name by which we express the fact that an offspring resembles its parents. On the other hand, the resemblance is not absolute. For example, two animals of the same litter or two plants of the same sowing are never identical. We apply the term "variation,' individual variation, to such divergences or to the tendency which produces them. It is, then, a fact that in new generations there appear new characters which it is impossible to attribute to a reversion to ancestral features—that is to say, they are truly new and undescribed hitherto. It is only as to the extent and importance of such characters that discussion arises.

We cannot deny that variation exists. Living forms have not the rigidity of stone ; they vary incessantly, and these variations have been used by breeders for the creation of races. Modifications of this kind are restricted however, within certain limits. Their amplitude is restrained by three conditions, as follows : Generally they are not permanent and they disappear at the same time as do the circumstances under which they are produced ; they are not transmissible by generation to descendants ; and finally, the modified beings have not lost the aptitude of crossing with those that have not been modified. This is what is meant by declaring that these individual variations cannot create a new species ; for these three defects found in the modified being are exactly those which define a species.

Up to the present time no one has ever seen an animal or vegetable species engender another or transform itself into another. In other terms, no one, except perhaps Hugo de Vries, has perceived a living form arising from another form, yet differing from it by features having the value of those which distinguish species, and showing itself inapt for crossing with the parent, although capable of maintaining and preserving itself by generation. Such a profound transformation cannot be accomplished in a moment or by a single effort.

Darwin supposed that such a transformation could be accomplished by degrees. According to his view the cumulative repetition of certain small variations might effect a more considerable transformation. In order to do this it would suffice that they should always be produced in the same direction during a long course of generations. Breeders effect this by reproducing and maintaining the conditions of the original transformation and breeding together the individuals which present such transformation This is "artificial selection." It is a judicious and methodical exercise of the two properties of heredity and of variation practised the interest and advantage of man.

The supposition of Darwin is equivalent to admitting that nature, personified, acts like man, heedful of consequences and with a method, by "natural selection" having in view the interest and advantage of species. Certain slight variations appearing under diverse influences, for example, under a change in the environment, will constitute an advantage for individuals. Such individuals are thus better adapted to these new circumstances and have a better chance of survival; these are the ones which will pair and by heredity preserve the advantageous variation, fix it, accumulate it, until there is formed a race, a variety, and finally a new species. This automatic play of the best adaptation favoring certain individuals, permitting them to survive and to reproduce themselves, has here, in natural selection, the same providential role as the breeder plays in artificial selection. It is the best adaptation which designs and chooses the useful variation; it is that which favors the individuals that possess it; it is that, in fine, which degrades the others in the concurrence, either direct or indirect, which exists between animales and plants, in that sort of struggle for existence whose importance was perceived already by A. de Candolle and Lyell, and which results in the disappearance of the vanquished species and the effective triumph of the new one.

It may be noted that natural selection is not a single hypothesis; it is a linking together of three hypotheses. If we separate the links of this chain we can show that not one of them will stand test. The first hypothesis is that of the advantage in the struggle for existence which is given to an animal by the possession of a small, adaptive variation; the second is that of a preservation, by transmission, of this acquired character; the third is the progress, always in the same direction, of these profitable variations, which, accumulating, finally create a specific character. None of these hypotheses will support a searching examination.

In the first place, as to the benefit of a small, adaptive variation, it may be observed that it would be, in itself, too insignificant to give rise to selection. Let us take for example the transformation of an ungulate quadruped into a giraffe according to the Darwinian theory. In this system an increase of some centimeters in the length of the neck would be a favourable adaptive variation; it would allow the animal, in case of famine, to browse upon the verdure of trees some inches higher than his companions could. But with Mivart, Naegeli, Delage, Osborn, Emery, Cuenot and others, we may affirm that in case of actual famine this advantage would amount to nothing and would not assure the survival of its possessor. The individuals who would die would be the youngest or the oldest, or, in a general way, the feeblest. The variation must be considerable in amount in order to constitute a real advantage and in order that the process of selection may be applied to it.

The second hypothesis is, then to imagine that this variation, admitted, for the moment, as useful, may be preserved and transmitted by generation. We have stated above what naturalists think at the present time concerning the transmission of acquired characters. The least that one can say is that it is very much controverted.

The third hypothesis, grafted upon the first two, is the repetition of the variation. Even if we disregard the objections made to previous hypotheses there are still others which present themselves here. It is, indeed, necessary that the variation should continue to be produced in the same direction during a great number of generations in order that it may be recognizable, since it is minute each time it occurs; many additional elongations would be needed in order to produce the neck of a giraffe from that of an ungulate. Lamarck, by placing the cause of variation in external conditions, makes this continual addition of effect plausible. The permanence, or better, the repetition of the processes of variation, will perpetuate itself as long as these external conditions are kept up. For example, in attributing the elongation of the neck of a giraffe to the habit of browsing upon the high leaves of trees and the effort of the animal to reach those which are still higher, Lamarck accounts for the definite and sustained course of variation. But it is exactly this resource that Darwin took away, since he did not accept the ideas of his illustrious predecessor as to the causes of variation. Decidedly, selection appears to be a process more adapted for preserving a state of things than for creating a new one. It is more conservative than revolutionary.

Besides, this is not the only objection, not even the most serious one, which affects this third hypothesis of Darwin. The principal difficulty with it is that it attempts to account for the considerable change which creates a new species by too slow an accumulation of inappreciable changes. When the Darwinists are pressed closely they demand time—much time; too much time. They require indefinite series of generations in order that the smallest species may be formed. Their adversaries have reproached them with having made our globe too old; this is also the opinion of Lord Kelvin.

In reality it must be that there is not so much delay in the creation of a new species. This is exactly what Hugo de Vries contends. He denies the gradual transformation of species by the addition of inappreciable variations; or, at least, he affirms that they may be produced by a process that is rapid, precipitate, sudden. The now species whose development he has observed have arisen abruptly, as one may say, explosively. This is what the Dutch naturalist calls "spasmodic progress."

II.

The main idea of the doctrine of Hugo de Vries is the abrupt mutation of living forms. The eminent naturalist does not advance it as an *a priori* proposition; he deduces it from his experiments, and he is not afraid of sharply opposing it to the universal view which accepts slowly-acting causes. In the course of the nineteenth century, geology was tossed from the cataclysms of Cuvier and his geological revolutions to the slow causes of gradual evolution pointed out by Sir Charles Lyell; and at the present time it is swinging back with Suess toward sudden transformations. It is interesting to note that a similar movement is occurring in biology; the attempt of De Vries is one of its manifestations.

A great number of zoologists, botanists and paleontologists are inclined to adopt this notion of sudden changes as consonant with the teachings of experience. We may cite in this connection the well known argument of Agassiz. This celebrated naturalist called attention to the simultaneous appearence, in the first fossiliferous strata, of a mixed fauna comprising representations of all the grand divisions of the animal kingdom. This is shown in the Upper Silurian or Devonian horizon in which the vertebrates make their appearance in the form of fish. In the most ancient fauna, and that which has become known most recently (that of the Lower Silurian or Cambrian), all the grand divisions are still found, except that of vertebrates, each represented by quite high types. It is a question to be decided whether, lower down, in the sedimentary rocks hitherto considered as azoic, there is really a living population, more widely scattered, and reduced to the most rudimentary animals and plants—that is to say, to protophytes and protozoans, as appears from the researches of MM. Barrois, Bertrand, and Cayeux. Yet it is none the less certain that the very important remark of Agassiz is true, and that, in the Cambrain horizon, all the principal types appear simultaneously. We perceive here a sort of explosion of universal life.

In consequence of this the transformists are obliged to admit that in the short space of time that corresponds to the deposit of the most ancient fossiliferous rocks the first living beings must have undergone all the evolutions necessary for passing from the state of a simple mass of protoplasm to that of types characteristic of all the grand divisions, the vertebrates only excepted. We are authorized to conclude that the time during which the most ancient fossiliferous rocks were deposited was short, because we can judge of it from their thickness, which is much inferior to that of the subsequent strata. Therefore, but a comparatively short space of time was required for the modifications by virtue of which the first living forms produced the principal grand divisons. The Lower Silurian epoch was one of rapid transformations, of active morphogenesis, of intensive mutations. If we wished to suppose that these were caused by the Darwinian mechanism of slow accumulation, of minute variations, we would be obliged to throw back the origin of life into an epoch inconceivably beyond the most ancient geologic epoch now known.

In the same way, as other paleontologists have observed, among whom is Dr. Charles A. White, the extraordinary flora of the carboniferous epoch developed abruptly. We know nothing or but very little of the floras that preceded it. Its appearance and its extinction were sudden.

We might multiply these remarks relative to the abrupt explosions of creation in living things. Here is another. The dinosaurian lizards that abounded throughout the secondary epoch, forming, indeed, the dominant animal type, show an extreme variety taken from any point of view. There were some gigantic ones, like Brontosaurus, having a mass that was certainly equal to that of four or five elephants, others of small stature not larger than a domestic fowl. The group included carnivora and herbivora, aquatic species and terrestrial species, quadrupeds, and bipeds quite similar to birds, except as to the faculty of flight. By the variety of their types of organization they form, as aptly stated by Frederick A. Lucas, a sort of epitome of the class of reptiles. Now, their appearance and differentiation were comparatively abrupt and sudden phenomena. It does not seem probable that they were formed by the mechanism of natural selection and that they were destroyed because of their inferiority to other species in the struggle for existence.

We arrive at similar conclusions from an examination of the first placental mammals. They appeared abruptly at the beginning of the Tertiary period; they assumed a variety of forms almost as numerous as those of the mammals of to-day, and they finally disappeared.

Besides the paleontologists, many naturalists have pointed out the existence, in animals of our own time, of abrupt variations that produce a new type that becomes fixed as soon as it appears, and that has the value of a species distinct from that from which it was derived. Mivart and Huxley, Clos, Camerano, and Bateson have called attention to the existence of such discontinuous variations, which may afford an explanation of the discontinuity of species. Yet the greater number of the examples adduced by these authors may be referred to the category of monstrosities or teratogenic variations which have succeeded in becoming fixed. This is the case with species of Asterias having numerous arms, with crinoids having three or four divisions, with a certain number of levogyrate gastropods. However, abrupt transformations have been noted by entomologists under perfectly normal conditions. Standfuss, to whom we are indebted for some extremely interesting experiments on the heredity in butterflies, speaks of "explosive transformations," thus expressing the richness in new forms suddenly produced from a single parent stock.

III.

The origin of the new theory of Hugo de Vries must be sought for in this mass of observations, facts, and theoretical ideas relative to the abrupt variation of species in opposition to the Darwinian idea of slow variation.

The Dutch naturalist has, in a manner, worked over all these ideas and codified them into a coherent system. This system already existed in embryo in the well-known little work which he published in 1889 on intracellular pangenesis. His views were, at the time, purely theoretical, for he had then only just begun his experimental verifications. Since then, however, some of his experiments have succeeded in an astonishing manner. To-day, therefore, it is the views that have been scrutinized and verified which the celebrated botanist presents to the scientific public in his work on the Theory of Mutation, recently published at Leipzig.

His doctrine consists, as might be anticipated from what we have said, in the denial of gradual transformation and the affirmation of abrupt transformation. Species in general do not enjoy that perfectly uniform and monotonous existence which has been assigned to them by naturalists of the school of Linnæus and Cuvier. Paleontology teaches us that they have a commencement and an end and that, during their term, they present periods of two kinds, periods of mutation and periods of equilibrium, times of calm and times of revolution. The observation of existing species confirms this view.

Ordinarily the principal "period of mutation" is found at the earliest stage of the species, at the time of its birth, but this is not absolute. However, the phase, or the entire group of phases, of plasticity, is more or less brief in comparison with the rest of its existence. It is only at these epochs that the living being is susceptible of mutations of a specific character; it is unchangeable for the rest of the time, that is to say, during the greater part of its term. Because of this the period of plasticity or of mutation usually escapes attention and we observe the greater number of species exactly at the moment when they have become really invariable—that is to say, susceptible only of those small, secondary, modifications which may, at most conduce to the formation of varieties and races.

When on the contrary, the species is in the period of mutation it offers an abundance of specific variations, distinct in character from the small individual ones. They are, in fact abrupt, clearly marked, permanent, fixed, and hereditary as soon as they appear, and the new forms are infertile when crossed on the parent stock. In a word they accomplish a transgression of the limits of a speeies.

Such is the new hypothesis of mutation. Before detailing the experiments on which it is founded, and furnishing the justification of its accuracy, it would be well to establish its signification, its scope, and its consequences.

This theory is a sort of rehabilitation of the idea of species. It does not, however, consider species as the fixed entity, the special and immutable category of the Creator's thought, conceived by the naturalist who followed Linnæus. It is truly a transformist doctrine; it admits the possible existence of an infinite number of species derived one from the other. Nevertheless it must not be denied that it confers on species an objective existence, a sort of reality that is foreign to the conception of the transformist school. "Species appear," says Hugo de Vries, "like invariable unities, such as are necessary in a systematic classification. Their existence is real, like that of individuals. A species is born, has a short period of youth during which it is subject to specific mutation, is maintained in an adult condition during a period which may be of great length, then finally disappears."

The doctrine of Hugo de Vries is opposed to that of Darwin in almost every point. The Darwinian theory has for its corner stone individual variation; the new theory, specific mutation.

Individual variations are progressive, usually guided by adaptation to the environment in a direction determined by the "survival of the fittest." They are continuous—that is to say, they are produced at all periods. Mutations are quite different. They are metamorphoses, not determined by adaptation; they are produced in various ways, without any direction; they are sometimes injurious, sometimes profitable, sometimes indifferent to the individual—they appear only at certain periods of the life of the species. Besides, both of these transformations occur from the action of causes which are deferminate but whose nature is unknown. The first affect, more or less profoundly, all parts of the organism; the others affect in a special way the function of reproduction. In the Darwinian theory the first form is separated from that which differs from it specifically by a long succession of generations. According to Hugó de Vries the first form which engenders another, and, ordinarily, many others, coexists side by side with this daughter species. It is only after its formation that the latter enters into competition with the species from which it sprang, and circumstances decide which shall survive and which shall disappear. Here the struggle for existence and selection suppresses species but it does not create them. In brief, the most characteristic feature of mutation is that it is a manifestation of a physiological character, connected by special conditions with the function of reproduction.

In one point only the two doctrines agree, viz., that very marked differences in organization are the effect of the disappearance of intermediate links. In the case of mutation the new form, although quite markedly distinct from the parent one, does not necessarily show great divergence from it. Its difference may sometimes be anatomically very slight, although they are physiologically very marked, since they inhibit any crossing. Great morphological divergences always result, as in the theory of Darwin, from a series of repeated mutations. These changes are, however, crowded together in a time relatively short, since newly formed species are, at the very moment of their formation, in their phase of plasticity, in their crisis of mutation.

IV.

We have now to state the evidence in favor of this doctrine and the foundations on which it rests. We may count in its favor the advantage of its reconciling the transformist hypothesis, which is necessarily logical with the immutability of species, which is according to De Vries, a proved fact. It succeeds in doing this as has been seen, by supposing that there is in the life of the species a period of crisis, so to speak—a temporary period of mutation which interrupts for a quite brief period the habitual invariability. In this it harmonizes with Darwin to a certain extent.

Hugo de Vries considers that the existence and invariability of species are facts supported by daily observation. He refers to the memorable experiments of Jordan and his followers, who made thousands upon thousands of sowings of vegetable species and never observed the passage of one into another—that is to say, a true vegetal mutation; they only obtained differences now classed under the head of individual variations. These, as is well known are of such a nature that if we avoid artificial isolation, segregation, and selection, the forms revert to the primitive type. It is vain for transformism to deny this remarkable fixity and to replace it by an hypothesis of changes so slow, so minute, and so gradual that they become evident only after the lapse of centuries, and inevitably escape our observation at the moment.

Another fact that accords with the theory of mutation is the existence, in certain genera, of animals and plants of a great number of species that differ from each other but little anatomically. Botanists are aware that most Linnæan species are groups of living forms that are constant, hereditary, and usually infertile when crossed ; that is to say, they are specifically distinct. Yet they differ so little in their aspect that many naturalists mistake them or confound them with each other. It would appear as if, at a given moment, in a crisis of mutation, the parent stock had become resolved into a multitude of secondary species which have persisted. For instance, the group of roses contains more than a hundred wild species so similar to each other that the most experienced connoisseurs make mistakes in their determinations. The thorn bushes, the willows, and the Alpine gentians are other examples of the same peculiarity, as are also the pansies and the sunflowers. In the animal kingdom many genera of insects present the same phenomena.

These, however, are merely agreements. H. de Vries has not contented himself with noting them ; he has sought direct proofs of his hypothesis. The best one would be to find a plant that was actually in its period of of mutation and that might beget, by means of seeds, a number of daughter plants in which there should abruptly appear the characters of a new species. We may readily apprehend the principles which would guide him in his researches. It would be necessary to experiment with genera of wild plants that have a large number of closely related species. Jordan has indeed, established the fact that the greater number of wild species now found in Europe are specifically immutable. Yet it is possible that they may not all be so and that some may, at the present time, be undergoing a crisis of mutation. There would be more chance of finding such among the species that present a great many subspecies, this being a sign of plasticity leading to the presumption of mutation. H. de Vries. therefore, experimented with 100 plants that satisfied this condition—centauries, asters, cynoglossi, carrots, etc. He chose seeds from those which were distinguished by some peculiarity or deviation, like fissuration of the leaves, ramification of the spines, etc. He arranged for the sequestration of the plant as soon as the peculiarity appeared, and before flowering. In order to avoid hybridization he enveloped the floral beds with bags of transparent parchment and fertilized the flower with its own pollen. The greater number of his attempts failed. Only one fully succeeded, thar which related to the onagra of Lamarck, the *Oenothera lamarckiana.*

This plant is well known as the biennial onagra, or ass's herb, brought from Virginia to Europe in 1613. It is a tufted, herbaceous plant about a meter in height, with simple leaves bearing some resemblance to an ass's ear whence the name of the plant. It has handsome flowers, usually yellow in color. Its red tap root (red rampion) is edible. Introduced into Holland, it became acclimated and is cultivated there ; it also grows there in a wild or uncultivated state, escaped from gardens and from cultivation.

One species of this genus, the onagra of Lamarck (*Oenothera lamarckiana*), was especially abundant around the little city of Hilversum. Now in 1875 it was noticed that in this district this species showed unusual vigor and a remarkable power of multiplication and dispersion. Varieties were multiplied in profession, and there was, therefore, reason to suppose that the plant was in its plastic crisis, in its period of mutation. H. de Vries cultivated it in his experimental beds at the botanical garden of Amsterdam, not for the purpose of favoring the production of organic forms by means of culture, but because by this means such forms could be preserved, aided, protected, and given more chances of maintaining themselves. These sowings were continued and the plants were observed during a period of fourteen years, from 1886 to 1900. In 1887 a new type made its appearance. In 1888 there were already two new species. In 1900, after eight generations, H. de Vries had obtained. from 50,000 plants produced from his several sowings, 800 new individuals belonging to seven undescribed species, There are, then, 800 individuals in 50,000 that are undergoing specific transformation. The activity of the mutation which this plant exhibits is, therefore, expressed by 1½ per cent.

The new species do not at all resemble the varieties of the parent stock. They appeared suddenly, without preliminary or intermediate forms. The care devoted to these experiments gives them a value which must attract the attention of naturalists. Their result furnishes a new and powerful argument in favor of the theory of mutation.—*Scientific American Supplement*, December 10, 1904.

THE PROBLEM OF HEREDITY FROM THE PSYCHIATRICAL ASPECT.

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The results of Dr. Beard's important investigations have, I am sure, impressed us as a very distinct biological advance. By proving the direct continuity of germ cells from generation to generation and establishing antithetic alteration of generations in the metazoa, Dr. Beard has displaced theory by solid anatomical facts and given us a clearer insight into the problem of heredity.

I have been asked to examine the bearing of Dr. Beard's findings on insane heredity viewed from the clinical aspect, and to consider the question of mental heredity with special reference to the inheritance of acquired qualities.

You are all only too well acquainted with the difficulties experienced in trying to obtain trustworthy evidence of heredity as well as with the fact that but in a small minority of instances we are enabled to reliably trace the chain of hereditary continuity beyond the fourth generation. We are consequently not yet in possession of sufficient facts to warrant the laying down of any definite laws regarding mental heredity. Another obstacle in the path of progressive knowledge is the impossibility in most varieties of alienism to decide the question in what number of cases mental derangement propagated to the offspring has been actually acquired by the parent. It is within our knowledge that certain types of mental disturbance are or may be acquired. This applies above all to audlt general paralysis and the various forms of alcoholism, in a small measure to epliepsy, and lastly, to the post-traumatic disorders of the cerebro spinal system.

To gain, therefore, a clear and comprehensive view of the extent to which clinical experience is prepared to support Dr. Beard's teaching, I shall first of all consider these four types of mental unsoundness.

In taking up the investigations of these conditions with regard to the purpose we have in mind, three principal groups of heredity may be distinguished throughout this paper, to wit, homologous, dissimilar, and what I shall term "mixed" heredity—that is, homologous heredity on the side of one parent and dissimilar on the part of the other. Our attention to-day will be mainly focussed on instances of the first group—ancestor and descendant exhibiting the same variety of mental affection.

The main questions we shall have to discuss in the light of my material and with regard to Dr. Beard's findings are.

1. Is there any clinical evidence of acquired mental abnormalities being transmitted to the offspring?

2. To what extent in insanity does environment influence the germ cells, and under what circumstances does it affect the same?

My experience, covering two decades of metropolitan asylum life, is based on the histories of 3,329 cases, which I considered sufficiently reliable, and which have been selected from 12,000 odd records of Dalldorf Asylum. Taking into account the time-limit at my disposal I shall strictly discard every unnecessary detail, reserving all particulars for a fuller memoir at a future date, and confine the scope of this paper to the most salient facts as suggested by my material.

In adult general paralysis we have a true type of acquired mental derangement. As regards the etiology, I find myself in complete concurrence with those who hold that in most instances the invasion of the organism by the syphilitic virus is a necessary step in the production of the disease. Too much insistence cannot be laid on this point. Environmental influences such as stress furnished by the circumstances of life, particularly inebriety so frequently occurring in those who have been syphilitic, I regard as predisposing factors, and as agents very often accelerating the morbid process. A much greater allowance, however, has to be made for the force of hereditary predisposition, all the more when we realize the preponderance of syphilitic victims who never develop general paralysis or any other nervous complaint.

Among 1,151 male and female paralytics a small proportion were constituted by congenitally weak minds, and sometimes there was a history of early convulsion. In very numerous examples a distinct family history of insanity has been obtained, and, according to recent researches by Drs. Arnott and Junius of Dalldorf Asylum, particular weight attaches to the incidence of bilateral heredity, in which cases they could state on an average a three years' earlier onset of the disease than in instances having a less pronounced hereditary record.

Frequently there is a negative report of direct inheritance, while the pressure of collacteral heredity or the occurrence of identical or allied affections in brothers, sisters, or relatives may afford indication of some degree of mental abnormality in the remoter ancestry.

In very few examples I have contrived to trace back heredity beyond the fourth generation. The offspring of paralytic parents are frequently imbeciles, idiots, victims of infantile cerebral paralysis, sufferers from early epilepsy, chorea, meningitis, congenital syphilis, and various other neurotic ailments. There would be a considerably larger number of these youthful invalids but for the high rate of sterility, miscarriages, stillborn and short-lived offspring. I have recorded 150 absolutely sterile marriages, not including those productive of a more or less long train of abortions.

Among the adult descendants I have noted a fair number of paranoiacs, cases belonging to the dementia praecox group, and other types of organic and functional disorder. On the other hand, a not infrequent record of exclusively sound children could be obtained. In one instance of paralysis in a parent, there were seven healthy children and no miscarriages.

The very marked influence of a paralytic parent is well illustrated by the case of a man who previous to infection had three healthy children by his first wife; by a second wife, after contracting syphilis, he had no issue.

By way of further illustration, let me now present to you a string of genealogic examples in which the paralytic descendants exhibit various forms of heredity.

1. A case of mediate dissimilar heredity; paternal and maternal grandmother insane; father's sister insane; parents healthy; son general paralytic (had a stillborn child).

In the next two instances there is an uniterrupted chain of heredity;

2. Grandfather insane; father imbecile; son general paralytic.

3. Maternal grandfather insane; father insane; maternal aunt epileptic; son general paralytic.

The following case is one of mediate heredity revealing itself in four sons:

4. Grandfather insane, committed suicide; parents healthy. Four sons suffer from mania, alcoholism, nervousness, and general paralysis respectively, the latter having had syphilis.

Instances of this kind are by no means rare.

An epileptic father, for example, had two sons, one an imbecile, the other a general paralytic.

There are, doubtless, paralytics innocent of any demonstrable ancestral taint, as exemplified by the following instance: Grandparents on both sides healthy; parents healthy; son general paralytic.

Of still greater moment are cases of homologous heredity, and such where several brothers, sisters, or relatives exhibit the same type of insanity. Some cases in point, which I could easily multiply, are the following:

Father apoplectic; maternal uncle general paralytic; two sons general paralytics.

In the next four instances there was a paralytic father:

1. Four sons, of which two were general paralytics, and two insane.
2. Three sons, of which two were general paralytics, and one committed suicide.
3. Two sons, of which one was a general paralytic, and one an epileptic.
4. Three sons, of which one was a general paralytic, one insane, and one peculiar.

In a fifth case, both parents and the only son were paralytic, and in a sixth a tabetic father had a paralytic son.

It is worthy of note that in quite a number of these "homologous" cases both ascendant and descendant had a clear history of syphilis.

Now, all these examples forcibly point to an inherited disposition, of which in some families all descendants participate, and which undoubtedly increases the chance of syphilitically-infected descendants to develop paralysis.

Although general paralysis is an acquired disorder which is never propagated to posterity—with the necessary exception of the juvenile form—there are conclusive reasons for assuming that in all individuals burdened with heredity the parental germ cells may be adversely affected, and so encourage "parasyphilitic" changes in the infected offspring, this being particularly true in instances of homologous heredity.

It would also appear that in certain families there is an uncommonly high degree of predisposition for the parasyhilitic sequelae of specific poisoning.

A leading role must be imparted to evironmental agency in those types of insanity induced by alcoholic indulgence, to which we now pass on. I have inquired into the history of 556 cases whose insanity was attributed to steady abuse of intoxicants, of which number 494 were males. The main facts elicited are an enermous prevalence of homologous—namely alcoholic—heredity, a rather low rate of hereditarily untainted individuals, and an intermediate proportion of dissimilar heredity. Apart from the numerous inebriates walking in the intemperate footsteps of their progenitors, I have found among the descendants instances of true paranoia, katatonia, dementia praecox, epilepsy, imbecility, and quite a fair sprinkling of organic cerebral disorders, including general paralysis.

The younger alcoholic offspring exhibits a serious record of early epileptic fits, shortened vitality, and idiocy. With respect to the incidence of miscarriages, stillborn children, and sterility, much smaller figures have been obtained than those encountered in the families of the paralytic parent; occasionally luetic antecedents in this class of alcoholic families were ascertainable.

The association between alcoholism and epilepsy is a very close one. In III instances fits were developed in the course of an intemperate life, the time of onset varying between 2 and 41 years after drink was started. Illustration of the different types of heredity in habitual inebriates is furnished by the following examples:

1. A case of dissimilar mediate heredity; great-grandfather, grandfather two paternal aunts, and one uncle insane; parents healthy; son alcoholic.
2. A case of mixed immediate heredity; father alcoholic; mother epileptic; son alcoholic.
3. A case of cumulative homologous heredity; great-grandfather, grandfather, father, and son alcoholic.

The evidence of clinical experience therefore discloses the fact that the majority of habitual drinkers have a neurotic history, and that the severity of the heritage is more prominent in those having a direct alcoholic ancestry. Moreover, clinical study does not support the suggestion that the acquired habit of drink or even any craving is transmitted, but the inference is rather in favour of the germ cells being so modified as to render the offspring particularly liable to the injurious influence of Alcohol. Some of the alcoholic descendants are congenitally intolerant. If the mother be addicted to drink additional damage may be done to the soma during intrauterine life.

I agree with Dr. Robertson that there is an inheritance of environmental influences. If it were possible to transfer all the offspring of alcoholic parentage into a healthy and moral atmosphere, and to wisely regulate their lives in every respect, the number of chronic alcoholics would be rapidly reduced in spite of adverse hereditary antecedents. Alcoholism, we may take it, is largely the product of environmental agency, based on a neurotic diathesis. No other form of mental irregularity is to the same extent dependent on the environment. The intimate connexion between alcoholism and epilepsy leads us now to the consideration of the latter affection.

Idiopathic epilepsy is the type of mental disorder which discloses the disastrous consequences of heredity perhaps more distinctly than any other nervous condition. We frequently encounter veritable family endemics. In one of my observations as many as ten children suffered with fits. Epileptics, like alcoholics, exhibit also in numerous instances a record of dissimilar heredity traceable through several generations:

The following are characteristic examples of cumulative heredity in epileptics:

1. Paternal grandmother insane; mother neurotic; son epileptic.
2. Paternal grandfather alcoholic; maternal grandfather and mother insane; son epileptic.
3. Grandfather and father apopletic; son epileptic.

Sometimes there is an alternation of homologous and dissimilar heredity in grandparent and parent, for example:

Maternal grandmother epileptic; father alcoholic; son epileptic.

Or we note homologous heredity of a cumulative description as in the following observations;

Paternal grandfather, paternal aunt, father, epileptic; mother consumptive; three children epileptic.

In passing, I want to remark that in my opinion ancestral tuberculosis is of some hereditary importance generally, and distinctly so in the history of idiocy and infantile cerebral paralysis, in assisting the formation of neuropathic disposition.

In cases of acquired epilepsy subsequent to cranial traumatism or infectious fevers, there is a large proportion with a neuropathic history. Among those with an apparently clean bill of heredity I have not met with a single instance where the acquired disease was manifestly handed down to the offspring.

We may, however, assume that in idiopathic epilepsy the germ cells are so seriously modified that even without any additional environmental influences on the soma the inherited disposition is duly developed. Sound hygienic conditions will, it is true, often reduce the number and intensity of the attacks, and injurious extraneous agents may aggravate the patient's condition, but otherwise environmental factors in essential epilepsy are probably not operative.

With regard to post-traumatic neuroses, I have likewise no positive proof of hereditary transmission. Respecting the group of senile dementia and other types of insanity due to arterio-sclerotic changes, we find a frequent hereditary predisposition for atheromatous degeneration. Instances of homologous heredity are distinctly rare in senility; sometimes several brothers and sisters are identically affected.

My closing remarks shall touch the large class of functional psychoses. I can afford to be very brief, chiefly by reason of the fact that clinical testimony of transmission of acquired characters in this group is absolutely negative.

Paranoiacs, and most sufferers from the other types of functional disturbance—namely, dementia praecox, katatonia, mania, melancholia, the recurrent forms of insanity, and hysteria—show a more or less powerful hereditary disposition to insanity and other nervous disorders. Apparently hereditary modification or the germ cells in one respect is of a twofold nature. Sometimes—take a typical case of essential paranoia—the morbid character of the germ cell will probably develop at one time or other in the face of the most favourable surrounding factors, while in other cases—for example, in the litigious type of paranoia——environmental agents, such as disappointment over a lost law-suit, may give instigation to a gradually-progressive development either of a dormant disposition or of a rudimentary disorder hitherto less conspicuous, and perhaps of a stationary character. The same applies to the different forms of insanity connected with child-bearing and the climacteric period, where there are numerous factors which may act as exciting causes.

Regarding the incidence of homologous heredity in the various types of functional psychoses, it is impossible, according to my experience, to formulate any definite law at the present moment. There are examples of homologous heredity in every class. As far as I can judge, however, transformation is more frequently the rule.

Summing up, I may say that, generally speaking, clinical experience does not clash with the results of Dr. Beard's investigations There is, first, no clinical evidence of acquired mental abnormalities being transmitted to the offspring. It is, secondly, highly probable that—to quote Dr. Beard—the influences of the environment are reflected on the germ cells. Thirdly, the hereditary potentialities of the germ cells may in some cases develop in early or later life, unaided by any traceable environmental influence; in other cases they certainly remain dormant or in a rudimentary state of development until roused to life by inimical extrinsic factors.

APPENDIX TO GENEALOGIC TABLES.

A.—*Dementia Praecox.*

(*a*) Parents healthy (father's brother epileptic) : two daughters epileptic ; two sons dementia praecox.

(*b*) Parents healthy (father's sister infantile cerebral paralyses mother's sister epileptic ; son dementia praecox.

(*c*) Grandfather suicide ; parents healthy (mother's brother suicide) ; son dementia praecox.

(*d*) Grandfather insane ; father simple ; daughter dementia praecox.

(*e*) Maternal grandfather insane ; father insane ; mother suicide ; daughter dementia praecox.

(*f*) Paternal grandfather diabetes ; maternal uncle diabetes ; mother's two sisters epileptic and insane respectively ; daughter imbecile and dementia praecox.

(*g*) Parents healthy ; father's brother epileptic ; mother's sister insane ; daughter dementia praecox ; son suicide.

(*h*) Great-grandfather, grandfather, father, alcoholics ; daughter dementia praecox.

(*i*) Grandfather insane ; father insane and alcoholic ; daughter dementia praecox.

(*k*) Grandfather and father, phthisis ; daughter dementia praecox.

(*l*) Great-grandfather suicide ; grandfather suicide ; mother insane ; daughter dementia praecox.

(*m*) Grandfather insane ; father normal ; two sons dementia praecox.

B.—*Recurrent Insanity.*

(*a*) Maternal grandfather insane ; maternal granduncle insane ; father insane ; two descendants recurrent insanity ; one insane.

(*b*) Great grandfather and grandfather alcoholic ; parents healthy ; two paternal cousins insane ; one daughter recurrent insanity.

(*c*) Maternal grandfather insane ; maternal uncle insane ; father insane; two descendants recurrent insanity ; one insane.

C.—*Paranoia.*

(*a*) Father alcoholic ; father's brother and sister phthisis ; mother paranoia ; daughter paranoia (communicated from mother.)

(*b*) Grandfather alcoholic ; father imbecile ; two descendants paranoic and choreatic respectively.

Great-grandmother insane ; mother imbecile ; one descendant paranoiac, one insane.

(*d*) Maternal grandmother insane ; mother imbecile ; one descendant paranoia, one insane.

(*e*) Grandmother neurotic ; parents healthy ; three daughters paranoia.

(*f*) Paternal grandfather insane ; father alcoholic ; mother neurotic ; son paranoia.

(*g*) Maternal grandmother suicide ; father suicide (paternal uncle insane) ; daughter paranoia.

(*h*) Grandfather alcoholic ; parents healthy (maternal brother alcoholic) ; son paranoia.

(*i*) Maternal grandmother paranoia ; parents healthy ; one son paranoia, one insane.

(*k*) Paternal grandfather suicide ; father suicide ; one son paranoia, one son imbecile.

(*l*) Mother paranoia ; one son paranoia, one epileptic.

(*m*) Parents healthy ; father's brother and mother's brother insane. one son paranoia.

(*n*) Maternal grandmother suicide ; mother criminal ; one son paranoia, one alcoholic.

D.—*General Paralysis.*

(*a*) In father and descendants: (1) Father and one son, 10 cases ; (2) Father and two sons, 3 cases.

(*b*) In two brothers, 13 cases.

(*c*) In mother and son, 2 cases.

(*d*) In other relatives of paralytic patients : Mother's brother general paralytic, 2 cases.

E.—*Non-paralytic Heredity in Grandparents.*

(*a*) Paternal and maternal grandmother insane ; parents healthy ; father's sister insane ; one son general paralytic ; one son insane ; one daughter peculiar.

(*b*) Father alcoholic and epileptic two sons general paralytics.

(*c*) Father alcoholic ; one son general paralytic, one dementia senilis.

(*d*) Grandfather insane ; father imbecile ; son general paralytic.

(*e*) Father epileptic ; one son general paralytic ; one son imbecile.

(*f*) Mother's brother insane ; parents healthy ; one son general paralytic ; one paranoia, one suicide, one alcoholic.

(*g*) Father apoplectic ; one son general paralysis ; one son tabes.

(*h*) Grandmother and mother insane ; son general paralytic.

(*i*) Maternal great-grandmother and mother's sister insane ; son general paralytic.

F.—*Epilepsy.*

(*a*) Paternal grandmother insane ; mother neurotic ; son epileptic.

(*b*) Paternal grandfather alcohoic ; maternal grandmother insane ; parents healthy ; son epileptic.

(*c*) Paternal grandfather and father apoplectic ; mother dementia senilis ; mother's brother epileptic ; son epileptic.

(*d*) Maternal grandmother epileptic ; father alcoholic ; son epileptic.

(*e*) Paternal grandfather epileptic ; father alcoholic and epileptic ; paternal aunt epileptic ; mother phthisis ; three descendants epileptic.

(*f*) Paternal grandfather suicide ; father alcoholic ; paternal aunt insane ; two descendants epileptic.

(*g*) Maternal grandfather epileptic ; father alcoholic ; mother's brother epileptic ; son epileptic.

(*h*) Grandfather and father alcoholic ; son epileptic.

(*i*) Grandmother epileptic ; father alcoholic and epileptic ; son epileptic.—*Brit. Med. Journal*, Oct. 15, 1904.

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সাধারণ মূল্য—মাদার টীং প্রতি ড্রাম ৷৵০, ২ ড্রাম ৷৷৵০, ১ম হইতে ১২ ক্রম পর্য্যন্ত ৷০, ২ ড্রাম ৷৵০, ৩০ ক্রম ৷৵০, ২ ড্রাম ৷৷০, এককালীন ৫৲ টাকার ঔষধ লইলে শতকরা ১২৷৷০ হিঃ কমিশন পাইবেন। পত্র লিখিলে সচিত্র ক্যাটালগ পাইবেন।

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RAT AND PLAGUE.

(Continued from last Number p. 49.*)*

Deuteronomy xxviii. 27 has the following: "The Lord will smite thee with the botch of Egypt, and with the scab, and with the itch, whereof thou canst not be healed." The meaning is, "The botch was a species of leprosy endemic in Egypt;—the emerods were our common haemorrhoids, or bleeding piles;—the scab, a kind of malignant scurvy; and the itch, a disease more common, and incomparably more offensive in the East than with us. A man may be seen covered from head to foot with this disorder."

It is sufficiently manifest that all these diseases were prevalent in an epidemic form.

In the Medical Officer's Report of the Local Government Board, London, for 1879-80, the following appears with regard to plague in Western China:

"*The Plague Endemic at Pakhoi.* Threatened as Europe was, in the early part of this year, with an outbreak of plague, it may be interesting to know that Pakhoi, in the Gulf of Tonquin, is a great starting point for that awful disease.

"Nearly every year there are sporadic cases, in the summer months, at Pakhoi and Lienchu: but periods of three or four years' comparative immunity intervene between great outbreaks.

"From Pakhoi the disease usually spreads in a north-westerly direction, till it reaches the city of Yunan.

* * * * *

"The disease first makes its appearance in the month of May and continues till September. It is *always* preceded by a similar epidemic among the lower animals, and the general opinion of the Chinese is, that it is due to some heavy earthly effluvia, which attack animals inversely as their respiratory organs are elevated from the ground. Thus, rats are first impregnated with the poison, then pigs, dogs, cattle and ponies.

"These preliminary illness among the lower animals is so premonitory, that all those who can afford to leave look on it as a warning for them to change their residence."

In the Transactions of the Epidemiological Society, London, vol. v, 1879-80, with regard to plague in Kumaon and Gurhwal, Surgeon-General C. R. Francis writes:—

"*Death of Rats.*—One very singular circumstance is the almost invariable death of the rats of the village, which occurs on the eve of an out-break of mahamaree. One would suppose that, as these animals only die in a particular way, and in some numbers at such times, the natives would at once take warning and vacate their villages; but no—they linger on until one of themselves falls a victim, and then occurs a universal exodus into the jungle, all obligations from the ties of kindred being lost sight of in their personal terror, though we witnessed some notable exceptions to this general display of selfishness. Beyond letting the village remain uninhabited for a time, the people would take no steps to improve its healthiness. At the end of a few months they would go back and live in it as if nothing had happened.

"*Mode of a Rat's Death.*—The manner of a rat's death was remarkable; the animal would emerge from its hole on to the floor, stagger, perform an involuntary gyration or two, bring up blood and die. More commonly the rats were found in the morning lying dead near the sleepers. On more than one occasion a rag has been found between the clenched teeth of the rat. I am not aware that any of the professional observers ever saw a rat die, and as thus stated; but, as the same statement was universally made by the natives, there is no reason to discredit it. And we saw rats dead."

Later on, "With the exception of rats, and much more rarely snakes, the death of animals in connexion with mahamaree was not a marked feature. If one animal, eating another plague infected, should die, how much more the bears who, it is alleged, consume the bodies of the villagers that have died of mahamaree? Certain it is that bears are often carnivorously disposed; and that they were observed in greater numbers than usual in outbreaks of this plague. I myself saw, one moonlight night, what appeared to be a small family of bears pass the bamboo scaffolding on which I was seated—they were too far for a shot—and the plague stricken corpses rapidly disappeared. No dead bears were ever seen."

All these opinions show that the writers were not decided as to the communication of plague from rat to man. On the other hand the discreditable element in the communicating link is that bears which consumed the dead bodies of men were not attacked with plague.

The evidence of direct infection from rat to man was so far unavailable. The history of the inferred connection comes from the plague in Bombay. In Nathan's book "The Plague in India," the following opinions are recorded:

"Staff Surgeon Wilm in his note on the Hong-Kong plague states that infection can be carried by animals, especially rats and mice. It has been stated above that the German Commission formed the conclusion that by means of rats plague germs can be introduced from one house to another and conveyed to man. General Gatacre stated that 'amongst other sources of the spread of disease throughout the epidemic, the influence of rats has been shown in many extraordinary ways. Grain depots are often the first centres in the spread of the plague, the infection having been imported into the colony of rats that haunt the depots, spreads amongst them, and they die in large numbers. In this way the grain and grain bags are infected and become sources of conveyance of the disease to human beings. The Committee (*i. e.*, the Bombay Plague Committee) have, during disinfection, invariably treated those places where rats have been known to die as plague infected localities.' This no doubt was a wise and necessary precaution, but it is open to doubt whether General Gatacre does not attach too great an importance to the part played by rats. Mr. Snow, the Municipal Commissioner of the City of Bombay and Dr. McCabe Dallas also lay great stress on the danger of the spread of infection by rats. On the other hand, Dr. Bitter considers that rats are of very minor importance as agents in the dissemination of the disease, and Dr. Rogers, another member of the Egyptian Commission, holds the same view."

It will be seen that no direct communication of the disease from rat to man has been traced. They rely on inferences of their own that plague may attack man through the grains infected by rats. It is now a known fact arrived after experiment that rats do not infect grains to any appreciable extent as to disseminate plague.

In India other animals besides rats have died of plague. The notable instances are the death of monkeys in Kankhal (Hurdwar) and that of the squirrels in the present Chandernagore plague.

The opinion of the German Commission is as follows :

" A rat which had become infected while in a state of freedom contained in its body a very great number of plague bacilli; and altogether, as later researches proved, rats showed themselves in a high degree sensitive to plague infection. Simple inoculation with the smallest quantities of a cultivation, or contact of the external mucous membranes with a cultivation was enough to produce invariably fatal plague. Since it is known that these animals in a state of freedom are accustomed to know the bodies of their companions dead of plague, it is easy to understand that the pestilence must spread very quickly among them and destroy the whole rat-population of a place, and that by means of rats the plague germs can be introduced from one home into another and conveyed to men."

The opinion contains possibilities of infection and no direct evidence has been given in support of the statement.

Dr. Montenegro in his book on Bubonic plague has dwelt on the question with a light heart. He says :

"It may be said that the plague is a disease of rats, which infects man. Generally, before the epidemic breaks out in a city, bodies of rats which have died of plague are found in the streets and houses. This was observed in Karad and Mundra in 1897, and in Kurachee and Bombay in 1898. According to the observations of Simond, the epidemic among rats follows a course analogous to that of the epidemic in man. After a period, during which the cases are not very frequent, the plague becomes suddenly very severe, and claims very numerous victims. On this panic determines the emigration of the majority of the rats, so that the sickness decreases; the sick animals meanwhile, losing their habitual fear of man, run through the streets in broad day light as if stupefied, until they fall dead in the drains, in the cellars, or in the middle of the gutter.

"Hankin has proved also that generally the first cases in a population occur precisely in those quarters in which the existence of the dead bodies of rats has first been discovered, and on many occasions it has been possible to demonstrate that the propagation of the epidemic from one town to another does not follow the route taken by the fugitives from the infected human population, but that taken by the rats in their flight. In a short time cases appear in the towns situated on this route. Mr. Snow, Administrator of Bombay, established in the most decided manner that the propagation of the plague to different quarters of the city, from the first focus to the population immediately surrounding that focus, did not follow the panic which was produced in the population when the existence of the first cases became known, but took place long after, when the rats emigrated, and in the direction followed by them.

"When fugitive families, flying from an infected city, have invaded a healthy population, the first cases have not always occurred among those families, or those who have given them shelter, but more frequently in grain, flour, leather or cloth warehouses, that is to say, where rats are most numerous—and the first victims are the care-takers of these warehouses. Sometimes, however, the first case is one of the fugitive family, leading us to believe that he was infected previous to leaving his house. When the case does not occur immediately, it can generally be shown that some days before its appearance a dead rat was discovered in the dwelling. An individual living in Bombay who had lost his wife by the plague, fled from the town. The rats of the house in which he lodged attacked his luggage, which contained his dead wife's clothing; they died, and produced cases of plague in the family of the fugitive, who last of all succumbed to the disease.

"But after all the relations between rat and man are not intimate enough to explain the frequency of the contagion. Numerous cases are cited of persons who have contracted plague by touching the dead bodies of rats. At the beginning of the epidemic in Bombay there were found one morning in a cotton warehouse a great number of dead rats. Out of twenty servants who were employed in throwing them away, half suffered from plague. None of the customers who visited the warehouse that morning suffered. A coachman found one day a dead rat in the yard and threw it into the street. Two days later he died of plague. There was no other case in the building.

"As is easily understood, these facts are not sufficient to explain the contagiousness of a disease which claims thousands of victims. There is much greater abundance of observations relating to the immunity with which the corpses of rats may be handled. Before the epidemic broke out in Mandvi the rats died in thousands, and the street Arabs amused themselves by throwing them at each other, without any cases of plague appearing."

The migration of rats is taken to be the carrier of the poison to other countries. The migration of diseased persons is not taken into serious consideration. The questionable fact with regard to the migration of rat is the exact observation of their leaving the diseased place. If they leave at all the diseased locality, it is during night. At night time such observations can be carried out with great difficulty. Then it is often seen that persons attacked with plague in Calcutta secretly leave the city for their home in a distant village which remained unaffected till their arrival. Generally after the event epidemic of plague breaks out in the village. Depending on this fact, which is observed by many persons of reliable authority, it can not be doubted that plague is disseminated more by human intercourse than by rats or other animals. The Bombay Plague Committee's report substantiates this view.

Transmission from man to man is disbelieved depending on the fact that physicians, nurses and methers are rarely infected. If we do not forget that gradual introduction of a poison in minute doses makes a man immune or less susceptible to the disease, then this circumstance can explain why certain classes of people are not sufficiently affected by plague. Why the Arabs who played with the diseased rats were not attacked, does not remain beyond this explanation. The possibility is that simple handling of the infected rats could not impart the poison, unless it is absorbed in the system some way or other. Dr. Montenegro supposes that—"It is not to be looked as strange that this should happen, as the bacillus can not be found on the skin unless pus, sputum, or dejections have contaminated it." Infection by dejections and sputum is a necessary mode of transmission in many cases. If a man carefully washes his hands before taking meal then there will be his little chance of being attacked by the poison.

The European method of taking meal by spoons is advisable to those who attend cases of plague.

In Allchin's Manual of the Practice of Medicine, Dr. Cantlie writes:

"*Prophylaxis.*—Seeing that rats and mice are the animals which convey plague, and by which human beings become affected, their destruction *before* a threatened invasion of plague is an absolute necessity if the disease is to be averted."

This crusade against rats is characteristic of the scheme to prevent the outbreak of plague in man. Taking the evil for granted, is it possible to prevent the attack of plague on human beings if all the rats are destroyed? The destruction of rats sounds equally with the theory of the destruction of mosquitoes. The practical question is, can they be carried to that extent which is desirable?

In that book we find:

"*Grain and other food-stuffs.* Hankin devoted considerable attention to this subject during the Bombay epidemics of 1896-7. It is of special importance to arrive at a distinct understanding on this point, as the prohibition of the import or export of grain in some parts of the world might have wide and important significance. In grain infected with plague cultures the bacilli soon die out. How soon they disappear is not quite known, but, after four to six days, extracts from the plague-smeared grain are not infective. In rice, sugar, etc., the same law holds good, so that food-stuffs of themselves are not pre-eminently dangerous. But all these articles may harbour rats, mice, etc., and are therefore liable to be foci of infection. It should be laid down as a rule, therefore, that when rats are found in any article of commerce, shipped at a plague-infected port, the goods must be viewed with suspicion. It is frequently asserted that it is not fresh grain but 'rotten' grain which harbours plague. This point Hankin also investigated, with the result that 'rotten' grain is less likely to favour the growth of plague than is fresh grain. The acid reaction set up in decomposing is fatal to the bacillus, and in all probability the microbe can live in such a medium for a few hours only, and certainly not longer than twenty-four hours."

The curious attitude of the writer is best observed. Being confronted by demolished theories, he still obstinately holds his conclusion which can not be established by facts of observation and experiment. An extreme confusion is found in another book:

"That rats and probably squirrels play an important part in the dissemination of plague cannot be doubted, and in Satara it was frequently noted that dead rats were found before or at the same time as places became liable to furnish plague attacks and deaths. Before the acme of the epidemic in January 1898, very few rats or squirrels could be seen in the town, although the place had up till then been infested with those rodents. Such an occurrence had never been noticed before by the inhabitants, who often voluntarily called attention to the phenomenon. Frequently plague rats were found dead, as in the gaol, and were examined bacteriologically, and proved to harbour plague bacilli, and often presented typical post mortem appearances, buboes in the groin or axilla, etc. The rats carry plague from one house to another seems fairly certain, and explains why neighbouring villages become infected outside the most perfectly devised police cordon, and also how villagers segregated whole sale away from the village site continue to develop plague long after the incubation period of the last case attacked previously has elapsed. In many instances without any (direct or surreptitious) intercourse between the segregated villagers and their infected homes or by a carrying on of infection from previous to succeeding cases, the disease continues to break out afresh. It is very doubtful if rats infect human beings by direct inoculation, but recently an undoubted instance has been recorded of such an occurrence in Calcutta."

We expect to refer to these direct inoculations hereafter, as they are exceptional circumstances.

(To be continued).

THE "VERNACULAR" MEDICAL SCHOOLS OF BENGAL.

The territories at present subject to the Government of Bengal might be said to consist of four principal provinces—Bengal Proper, Behar, Orissa and Chota Nagpur. Of these Bengal Proper is the largest and most populous, and so it has one Medical College and two Medical Schools, while the provinces of Behar and Orissa have each one Medical School attached to it. The province of Chota Nagpur is an upland country, a great portion of which is hilly and jungly and too sparsely peopled to have a school of its own. The territory of Bengal has thus five Medical Schools within it—The Calcutta Medical College, and the Campbell Medical School at Calcutta, and the Medical Schools at Dacca, Patna and Cuttack. The Calcutta Medical College is an affiliated institution of the Calcutta University. Its studies are therefore regulated by that University, and the local Government has very little to do with it. But the four Medical Schools are under the direct care of the Lieutenant-Governor of Bengal, and each institution is managed by a Superintendent under the control of the local Inspector General of Civil Hospitals. As these schools, which had hitherto been left entirely under the management of their Superintendents, seem now to have attracted the attention of Sir Andrew Fraser, we avail ourselves of this opportunity to take some notice of them, in the hope that our energetic Lieutenant-Governor may see his way to do what may be necessary to improve the condition of these Institutions.

In the absence of a proper account of the origin of these institutions and of the ways in which they have hitherto been worked, we propose to enter into a short history of medical education in Bengal. For upwards of three quarters of a century since the conquest of the country by Clive, little or nothing was done towards imparting a proper knowledge of the medical sciences, though the Indian Medical Service produced many distinguished men even in that remote period. A medical institution was, it is true, maintained by Government for some years. But this school was attended by young natives of the North Western Provinces, chiefly sons of Native Doctors and Sepoys, and the training they received was only designed to qualify them for subordinate duties in the hospitals for the Native Army. In 1826, the General Committee of Public Instruction deemed it desirable to form Medical Classes in connection with the Sanskrit College and the Madrassa of Calcutta. Some of the students of these classes read translations into the Urdu language of European elementary works, while others read Sanskrit or Arabic works on medicine. If dissection was at all practised, it was only done on the inferior animals, such as dogs and goats. A small hospital was attached to the Medical class of the Sanskrit College, so that the students of that class were not only acquainted with the useful information contained in some of the Sanskrit Medical works, and had some knowledge of elementary Anatomy and Physiology, and of the Practice of Physic, but they also studied the phenomena of disease at the bedside of the sick, and had the opportunity of practising bleeding and opening of abscesses, the dressing of sores and cuts, and the weighing and compounding of medicines. We believe Dr. Madhu Sudan Gupta, whose portrait still adorns the hall of the Medical College was one of the students of this class.

In 1833, Lord William Bentinck, whose administration "forms a salient point in the history of Indian reform," appointed a Committee with Dr. J. Grant as its President to make enquiries and to report on the subject of medical education. This Committee recommended that "a new institution should be founded on a more extensive scale, in which the various branches of medical science cultivated in Europe should be taught, and as nearly as possible on the most approved system," and that instruction should be conveyed through the medium of the English language. In January 1835 the Government of India issued an order abolishing the old Medical Institution along with the Medical Classes in the Sanskrit and the Mahomedan Colleges, and establishing in their place the present Medical College of Calcutta. The College was opened in June 1835 on a humble scale. It had only two Professors to deliver lectures, and there was no hospital or library, museum or laboratories attached to it. It was not until towards the end of October 1836 that the students undertook the dissection of the human subject, and later on a museum was attached to the College, a library and laboratories were formed in it, and Hospitals opened within its compound. Previous to 1843, the regular period of study was limited to four years ; since that time it has been extended to five years, the former period being found to be too short for the wide range of subjects embraced in the curriculum of study.

It will be seen that the students of the old Medical Institution abolished in 1835 received only an elementary medical education scarcely worth the name, and suited only to the duties which the ex-students had to discharge in the army hospitals. But the students of the new College received a more scientific education of a higher character, and they aspired to higher and more lucrative appointments. So the supply of Native Doctors for the native army, for which the old Medical Institution was, especially established, ceased to the great inconvenience of that army.

Under these circumstances, the Professors of the new Medical College were led to recommend the formation of a Vernacular Department in which instruction in medicine of a very elementary character should be communicated through the medium of the Hindustani language. The whole question came under the consideration of Government in April 1839, and the President in Council eventually authorised the establishment of a Vernacular Department in the College to supply the needs of the army. His Honor added, "It might be desirable hereafter to establish subordinate seminaries of a similar kind in different parts of the country, in which some of the more highly educated students of the College might be usefully employed in the capacity of teachers and professors." This Vernacular Department (or, the Military class, at it was some times called) was opened in October 1839, and the students admitted received stipends, and had to enter into an engagement to serve Government as Native Doctors for a period of not less than seven years. Before obtaining service these students had to undergo a regular course of training, and to pass an examination before the Professors of the Medical College.

This Department or Class was chiefly under the management of Indian teachers, (originally two in number, but gradually increased to four), and the course of instruction was at first confined to Anatomy, Pharmacy, Medicine and Surgery, but it was of a more practical character than what it had been in the Old Medical Institution. The dissection of the human body was regarded as a leading branch of instruction. The students were also required to perform minor surgical operations, such as bleeding, cupping, tooth-drawing, &c., to practise the ordinary duties of compounders and hospital dressers, and to keep careful notes of cases they had to watch and study.

Some years afterwards, a Bengali Class or Department was added to the College being formed on a plan similar to the Hindustani Class. The period of study was two years at first, subsequently increased to three years. The passed stipendiary students of this class were employed in jails, civil stations, &c. Others were allowed to join it as free students, and might practise on their own account, or join private service under Zemindars, or Superintendents of Charitable Institutions. Many of the passed students of this class scattered themselves over the unhealthy districts of Bengal to the great benefit of the inhabitants, especially in epidemic times.

(To be continued.)

COMMON DISEASES AND THEIR TREATMENT.

X.

(Continued from last number p. 61.)

Clarke justly remarks: "In power and range it stands in the first rank of homœopathic remedies, but it has an additional significance, in that it exemplifies the power of attenuation in a remarkable way. The problems involved in *Nat. m.* may be regarded in a sense as the *pons asinorum* of homœopathy. Those who are able to grasp in a practical way the homœopathic uses of this remedy are not likely to meet with any insuperable difficulties elsewhere. Those who can see nothing but 'common salt' in *Nat. m.* may conclude that they have not 'the root of the matter' in them. It may be inconceivable to some that the attenuations of *Nat. m.* should act independently as curative or pathogenetic, at the same time that crude salt is being ingested in quantities; and it may seem that an infinitesimal amount of a substance which is a necessary constituent of our tissues cannot possibly have any action at all; but this problem is constantly before the homœopathist, and if he cannot master it in respect to *Nat. m.* he need not trouble his brains to try elsewhere. *Nat. m.* has been extensively proved, both in the lower triturations and in the 30th and higher attenuations, and the latter produced the most marked effects. I have mentioned in the preface an experience of my own, which I will give here in more detail. For a common cold which had proved troublesome I took eight globules of *Nat. m.* 200. The next day the cold was not better, but I felt ill, and presently a copious, gushing, watery, light coloured diarrhœa set in, and persisted for some days, draining all my tissues and reducing my weight by half a stone before I could think of the cause. Then the dose of *Nat. m.* flashed on my mind, and I at once began to smell at a bottle of Sweet Nitre, the antidote. The diarrhœa and all other symptoms vanished in a way I have never forgotten; and the lesson was well worth all the suffering I had undergone."

The rationale of Nat. mur. in homœopathic practice has been well explained on the principle of *Similia*. The unexplained problem is, we do take a certain quantity of the salt every day. It does not affect us in any way. The quantity is not generally fixed like other drugs which are not required for human economy to build up the system. The quantity mostly depends on the habit of a person when it is not excessive. There is a certain point beyond which we can not proceed. The over-stepping of limit creates our liability to suffer. The probable explanation of the little excess that is taken, is that it is excreted away by some way or other. When the excretory organs cannot work then the blood being surcharged with the drug, though it be our daily food, produces mischief.

Nat. mur. has the following symptoms: *Emaciation* (Iod); *emaciation of body but face was tolerably plump.* Sudden shock. Increase of blood corpuscles, fibrin, fatty matters, and of extractives and salts, in blood, with decrease of water and albumen; sore pain in brain; *pain as if flesh were loose, worse in thighs and upper arms on motion*; pain at night in inflammation on back; *Sensitiveness to touch* (Arn., Chin., Nux v.); *takes cold easily* (Kal. c., Nux v.); *dread of open air; pulsation in whole body, even during rest;* pulsation violent in blood-vessels; *weakness* (Ars., Chin., Fer., Kali c., Nux v., Sep., Iod.); restlessness; *weakness of mind and body;* stiffness of scapulæ, hip-joints and small of back; riding on horse back affected more; aggravation when lying; rigidity of all joints which crack when moved; old sprain; *swelling of glands; sticking externally down neck, even through the night; swelling in nape at night;* pain in muscles on touch and on turning head; bruised or weary in nape of neck; tearing downward in spine; *pain as if back is broken;* bruised in back and between scapulæ; pain on pressure upon an inflamed spot; contusive pain and feeling of paralysis in sacrum; over sensitiveness of spine; wrenching pains in joints of shoulders and fingers; swelling of hand; wrenching pain in hips with shooting; pain as if knees and ankles were sprained; swelling of feet; pain as from ulceration in malleoli, when putting feet.

These symptoms point to the inflammation of muscles as well as of bones, from injury or other causes. Frank records the abscess in the middle of the left tibia. Back as if beaten is another leading indication. When old sprains become re-inflamed we should think of Nat. mur.

Natrum Salicylicum has cured abscess in axilla according to Clarke. It can set up irritation of inguinal glands, and therefore it may cure the inflammation of those glands. The axillary abscess seems to be the effect of the enlargement of the axillary glands. The glandular inflammation leading to abscess comes under its proper influence. Whether other inflammations can be cured by it remains to be observed.

Natrum Sulphuricum has the following symptoms ; Tearing down, with feeling in bones of back, as if dogs were gnawing them ; stitches in region of middle dorsal vertebrae ; drawing in dorsal muscles ; stitches between scapulae ; tearing in scapulae, extending to neck shoulders and pectoral muscles ; tearing from os coccygis into middle of the thigh, in the bone, with piercing pain ; bruised pain in small of back ; painful stitches in axilla in soft parts : tearing, boring and tensive pain in shoulders and arms ; tearing, boring and bruised pain in elbow, forearm and fingers ; pain in hip, *worse on stooping, rising from a seat or moving in bed* and better by stretching and walking ; tearing, boring, drawing, and compressive pains in the lower extremity : shooting pain of ulceration under nails ; stabbing pain in hip after a fall ; tearing and shooting, or jerking, or jerking tearings in limbs, and other parts, especially during evening and night ; *aggravation from lying on the left side* (Nat. mur., Phos., Puls.).

Natrum Sulph has the peculiarity of producing boring, tearing, contusive, shooting, drawing, and stabbing pains. They point out to the inflammatory character of the pain. Shooting pain of ulceration under nails has directed the application of the medicine in panaritium with success. Allen remarks : "Useful in affections of the hip-joint, with pain at night, better by turning over." The use is the consequence of a leading symptom in the hip. It can cure stabbing in the hip after fall. Allen further remarks: "All conditions are worse by dampness. It corresponds in a general way to the 'hydrogenoid' constitution. A great remedy for lithaemia. Aggravation from lying on left side, especially of the hepatic symptoms."

Clarke differs from Allen with regard to the pain in the hip-joint. According to Clarke, the pain in hip is better in certain positions, but compels one to move again after a short time, causing intense suffering. In another place Clarke observes: "Rest increases most ailments (can hardly find a position where pain in hip is tolerable, and the amelioration by changing does not last long). Turning or twisting body very painful."

The word hydrogenoid constitution requires a definition. Clarke writes: "Grauvogl described as the hydrogenoid constitution the state in which there is extreme sensitiveness to damp, wetting, bathing, watery food, and residence near fresh water. Periodicity is another feature of this state. This constitution he considered as providing the soil for gonorrhœal infection. It corresponds to Hahnemann's sycosis. *Nat. Sul.* was Grauvogl's leading anti-hydrogenoid." It is difficult to harmonise all these relations in view of the knowledge derived from modern physiology and pathology. Serious doubt has been entertained with regard to Hahnemann's theory of sycosis. The adoption of the word hydrogenoid has produced a worse confusion. If hydrogenoid constitution be taken to be the idiosyncrasy which is liable to be affected by cold, damp and wet, then the use of some other word is necessary to make it consistent according to our modern ideas. Schussler's explanation cannot be accepted believing the modern expositions of physiological facts. He evidently follows Grauvogl and makes the belief more inexplicable. The all-round character of the so-called hydrogenoid constitution of Natrum sulph. cannot be maintained. Clarke mentions a case of headache where shooting pain was relieved by the application of cold compresses.

On the whole it can be said that inflammations produced from cold can be treated by the administration of Natrum Sulph. Inflammatory pain of all kinds especially in the hip may have its use.

(To be continued.)

EDITOR'S NOTES.

The Berlin Homœopathic Hospital.

The following additional details concerning the recently opened hospital may be of interest to our readers. The hospital is situated in the suburb of Gross Lichterfeld, and in which is also placed the great School for Cadets. The building, standing on a plot of about 10 acres, covering an area of 1200 square metres (1433 square yards), and comprises basement, ground floor, upper floor, and *mansarde* roof, and contains fifty beds. Besides the wards there are also two operating rooms, the residences of the house-physician and of the *personnel* of the hospital; a laboratory, dispensary, waiting rooms, etc. The price paid for the ground was £10,000, and was provided for the most part, by the Wiesecke Fund; the cost of the building alone was £17, 500. May its presence serve to show the Berliners that homœopathy is still very much alive!—*Monthly Homœopathic Review*, Feb. 1, 1905.

Malarial Fever in Bengal.

One hears a good deal of the terrible mortality from plague, but malarial fever in some parts of India well holds its own as the chief scourge of the population. In Bengal especially the death-rate from fever in parts of the Jessore, Nadia and Rajshahi districts is appalling. From a return presented at the last meeting of the Lieutenant-Governor's Legislative Council, it appears that the population of the Jessore district declined from 1,888,827 in 1891 to 1,813,155 in 1901. In the four years since the Census was taken the total mortality from fever has been nearly 2,35,000, to which may be added over 23,000 deaths from cholera. As the number of births in that period was only 247,870 it will be seen that the decrease in population must have continued. In fact the deaths from all causes have exceeded the births by about 37,000. In seven towns in the Nadia district a similar state of things seems to exist. In the Natore subdivision of the Rajshahi district the population sank from 326,017 in 1891 to 3,02,981 in 1901. In the four years 1901-04 the deaths from fever were 47,844, while the total number of births was almost exactly 50,000. The mortality from all causes was 57,841, so that the population has declined at the rate of nearly 2,000 per annum. These figures are a striking indication not only of the actual mortality from fever, but of the permanent effect which the disease has in lowering the birth-rate, a well-known physiological fact connected with malaria. It is understood that the medical authorities in India generally are now paying more than statistical attention to the death rate from malarial fevers, but we have not yet heard what special measures are being taken in Bengal. In reviewing the Provincial reports on jails for the year 1903 the Sanitary Commissioner with the Government of India urged that "an enthusiastic and sustained campaign" should be begun against malaria, and it is time that operations were begun in earnest, not only within the prison walls but in village areas also.—*Pioneer.* *Indian Mirror*, March 5, 1903.

Allopathic Doses and Allopathic Accidents.

"At Liverpool on Saturday Mr. Sampson, the City Coroner, held an inquiry regarding the death of Samuel Storey, a seaman, who died at Stanley Hospital on Thursday. He was admitted to the institution suffering from a diseased arm, and it was stated that the nurse, in administering an aperient, gave him a dose out of a bottle containing caustic soda, which she mistook for magnesia. Both bottles were alike, the liquid and labels were similar in appearance and both were kept on the same shelf. Medical evidence was given to the effect that the man's condition was such that prior to swallowing the poison his recovery was doubtful. The jury returned a verdict of death by misadventure, adding a recommendation that all bottles containing poison should be properly labelled and kept in separate places."—Nov. 28.

"At the City Coroner's Court, Dr. Waldo concluded an inquiry in reference to the death of a man who suffered from appendicitis, and died after an operation, previous to which he had been given a quantity of opium pills. Some interesting evidence was heard as to the amount of opium prescribed in certain cases. One doctor stated that he had given an woman a wineglassful of laudanum, or one drachm of opium and she was still alive, and he had seen a girl of twelve given one grain every hour. Another doctor said he had a patient who took forty grains of opium because he wanted to poison himself, and he was still alive. The coroner remarked that they were told De Quincey took nine ounces of opium per day, and still he lived to a good old age."—Dec. 2.

"The Grimsby coroner held an inquest last night at Scrub Holt, near Laceby, one Jane Anne Pennell, aged five years. It appeared that her mother, the wife of a labourer, on Monday night administered laudanum to the deceased in mistake for tincture of rhubarb. Another child was similarly treated and lies in a critical condition. The coroner feelingly alluded to the terrible mistake, and expressed sympathy with the parents. The jury concurred, and returned a verdict of death by misadventure."—Dec. 8.- *Hom. World*, Jan. 2, 1905.

Melbourne Homœopathic Hospital.

The following gratifying announcement appears in the Melbourne *Table-Talk* of Oct. 13th :—

"The new operating theatre and casualty room at the Homœopathic Hospital, St. Kilda Road, was opened by Sir John Madden last Thursday afternoon, in the presence of a number of guests, who were present by invitation of the chairman and members of the Board of Management. The new theatre, which is very replete and up to date, stands in front of the original building, and is the outcome of a munificent thank-offering of Mr. James Mason. Some time ago he met with an accident, and was treated at the Homœopathic Hospital. Evidently noting that the casualty room at the back of the hospital was not too conveniently situated, upon his recovery he offered £500 towards building one in front. Dr. Bouton public-spiritedly undertook to raise the remainder of the money needed to complete the work, and it has been collected. The result is the fine and complete building opened last week. Sir John and Lady Madden were received by Sir Samuel Gillott (President) and Lady Gillott, and the members of the board. At the conclusion of the formal opening, afternoon tea was served in the board room."—*Monthly Homœopathic Review*, Jan. 2, 1905.

Sir Joseph Fayrer.

Sir Joseph Fayrer, Bart., K.C.S.I., who celebrated his 80th birthday a few weeks ago, has recently settled in Falmouth. He is, we are glad to learn, in good health, and still hopes to be useful to the profession which he has served and loved so well. Sir Joseph Fayrer, who entered the Indian Medical Service in 1850, had previously held a commission both in the Navy and in the Army Medical Service, probably a unique experience. In India he had a most distinguished career; he was Residency Surgeon at Lucknow when the Mutiny broke out, and of his experiences and adventures during the historic siege of Lucknow he has given a vivid account in a volume published a few years ago with the title *Recollections of My Life.* He was the medical officer of the Staff which accompanied King Edward VII, then Prince of Wales, during his visit to India, and in 1874 was appointed President of the Medical Board, India Office. This office he held for over twenty years, and during the whole of that time he took an active part in the medical life of London. No man has better earned a right to rest, and the whole profession will, we are confident, join in wishing to him and to Lady Fayrer many years of health and happiness.—*Brit. Med. Journ.*, Jan. 7, 1905.

Cremation in Great Britain.

There are now nine crematoriums in active existence in Great Britain. The oldest of these is St. John's, Woking, which was opened in 1885; and the most recent is Birmingham, which was opened in 1903. Between them come in order of seniority of foundation Manchester, opened in 1892, Glasgow in 1895, Liverpool in 1896, Hull (municipal) and Darlington in 1901, Leicester (corporation), Golder's Green, Hampstead Heath, in 1902, and Lawnswood, Leeds, in 1904. The following additions to the list will be made in the course of 1905: The City of London Corporation crematorium at Ilford, and the Bradford crematorium. The total number of cremations carried out in this country since the establishment of the practice is 4,407, the figures for the several crematoriums being as follows: Woking, 2,653; Manchester, 838; Glasgow, 157; Liverpool, 264; Hull, 68; Darlington, 11; Leicester, 14; Golder's Green, 383; Birmingham, 19. The figures for the various crematoriums during 1904, as compared with those for 1903, show only a slight increase at several, and at one (Woking) even a trifling decrease, but, owing to the influence of Golder's Green, the returns taken together show an increase of 91 cremations last year as compared with 1903. The following table, for which we are indebted to the courtesy of Mr. Herbert T. Herring, Medical Referee of the Cremation Society of England, displays at a glance the facts in regard to the progress of cremation in Great Britain:

Name of Crematorium.	Opened in.	Number of Cremations.		Total Number of Cremations Since Commencement.
		1903.	1904.	
St. John's, Woking ...	1885	143	138	2,653
Manchester	1892	92	94	838
Glasgow	1895	18	20	157
Liverpool	1896	40	40	264
Hull (Municipal) ...	1901	18	20	68
Darlington	1901	1	7	11
Leicester (Corporation)	1902	5	8	14
Golder's Green, N.W.	1902	158	220	383
Birmingham	1903	—	19	19
		475	566	4,407

These figures show that while, on the whole, cremation is making steady headway among us, the progress is somewhat slow. There is reason to believe that the feeling against the practice, whether founded on theological beliefs or on sentimental considerations, is less strong than it was even a few years ago. The public mind is slowly, perhaps, but we think surely, becoming accustomed to the idea; it must be confessed, however, that it is not yet keenly interested in the matter. This indifference is probably in large measure due to ignorance on the subject of cremation. Moreover, most people in the conduct of their affairs prefer to follow the line of least resistance; and cremation is rightly surrounded by stricter requirements in the way of certification than are as yet insisted upon in the case of ordinary burial. Nevertheless, in view of the many obstacles with which they have to contend, the advocates of cremation are to be congratulated on the success that has crowned their efforts. On the other hand, the cause which they are active in promoting has lost its most powerful champion by the death of Sir Henry Thompson. To his initiative the movement owed its inception, and under his skilful direction it steadily gained strength and volume. No man of less commanding position or less energizing influence could have secured a hearing for a proposal which thirty years ago was looked upon by the general public as an outrage on one of the most sacred instincts of human nature; and no man of less indomitable resolution could have overcome the vast obstructing mass of prejudice which stood in the way of the reform which he had at heart. His loss is irreparable, but there is some consolation in the thought that he lived to see the work which he had set himself to do on a fair way towards accomplishment.—*Brit. Med. Journ.*, Jan. 14, 1905.

Conrad Wesselhoeft, M.D.

March 23, 1834–*Dec.* 17, 1904.

The very general expression of sorrow called forth by the death of Dr. Conrad Wesselhoeft may be accepted as a sufficient demonstration of the respect and affection in which he was held far beyond the circles of his more immediate friends, patients and colleagues. A man so highly esteemed and so much missed has left a void which time will surely fill, but it can be filled only by one of his own stamp, which is not the common one. It may be said, indeed, without yielding to the promptings of obituary fulsomeness, that men of this stamp are so rare as to make the contemplation of their lives serve to lift us for a moment above the current of our daily thoughts and strivings.

To the readers of the Gazette, to whom he has been so long and so intimately known, a brief biographical sketch and a review of his labors and aims will not fail to be of sympathetic interest.

He was born in Weimar, Germany, of a family active in all reforms, a family whose tendencies and ideals he largely inherited. Coming to the United States in 1840 as a boy of six, he speedily absorbed the traditions and habits of mind peculiar to American youth, while preserving a certain soberness of thought and an earnestness of purpose which characterized him throughout life. At the age of fifteen he was sent to Germany, where he entered the St. Thomas Gymnasium, a classical school which counts among its alumni many distinguished men, and still holds a high place as an educational institution. From this he graduated after four years as *primus*, or head scholar, when, in consequence of the death of his father, he returned home to assume practically the position of head of his family. Entering the Harvard Medical School he pursued his studies with a zeal and intelligence which attracted the attention of his teachers, and brought him early into that closer relation with men like John Ware, Henry I. Bowditch, John B. Jackson and Calvin Ellis, which is the reward and distinction of serious and receptive students. The many acts of kindness and helpfulness of these large-hearted and truly progressive men, in such marked contrast with the repellent intolerance of others towards the young man already supposed to be tainted with the homœopathic heresy, he loved to recall in his later years as among his most pleasing experiences. The favoring influences coming from these men in the forming of his judgment, and in intensifying his love for the profession in which they bore such honored names, he never failed to recognize.

In addition to the inspirations derived from these teachers he came more directly under the guidance of his uncle, Dr. William Wesselhoeft, a practitioner of exceptional knowledge and skill, whose instruction and example could not fail to arouse in the receptive mind of the young student a genuine enthusiasm for the great reforms inaugurated by Hahnemann, while, at the same time, he was becoming hourly more and more impressed with the best spirit and the best traditions of his chosen calling, the thoughtful spirit and the traditions which, it is to be feared, are not everywhere upheld in the specializing and supposedly practical teaching of the schools.

Graduating in 1856 with the esteem and kindly consideration of his teachers expressed in many ways he soon settled in Dorchester, then a widely scattered suburb of Boston, and promptly gained the confidence of a large and intelligent clientele. As, however, neither his tastes nor his health fitted him for the exigencies of a country practice, he moved, as soon as he found himself in a position to do so, to Boston, drawn as he was to a more congenial sphere of activity. Here he at once took a prominent part with men like Talbot, de Gersdoeff, Thayer, Chase and others in the affairs of homœopathy which, at the time, were becoming acute as a result of the increasingly strained interpretation of the medical ethics of the day. He succeeded in so formulating the principles of the Massachusetts Homœopathic Medical Society as to bring them into harmony with the wider principles of advancing science and sound ethical conceptions. His active interest in founding the Boston Homoeopathic Medical Society, in establishing the Homoeopathic Dispensary and Homœopathic Hospital are well remembered by his older colleagues. With the founding of the Boston University Medical School he was closely identified, and remained to the last one of its most active and representative teachers.

The recent review of his labors in behalf of the cause to which he had devoted his life, given in his own modest words at the banquet tendered him on the occasion of his seventieth birthday, make it unnecessary now to repeat the details. Of more importance is his attitude towards the fundamental principles of Homoeopathy and the purification of its practice, since the constant effort to set forth these principles in clearest light, to adhere to them wisely in the exigencies of practice in the presence of the ever-changing limitations of different therapeutic measures, and to support them by strictly scientific data, was the ceaseless purpose of his truth-seeking mind.

In his early years of practice, after the death of his uncle, he was strongly attracted by the wide learning, the militant spirit, the provings and other researches of Dr. Constantine Hering, who became warmly attached to the ardent young physician, and soon looked upon him as a future leader in the great therapeutic reform which had for its aim the fullest and most unprejudiced knowledge of drug effects. Under so stimulating an influence, and in fellowship with Carrol Dunham, Wells of Brooklyn, Dake of Nashville and others, men so much his seniors, he labored for the advancement of the American Institute of Homoeopathy; an organization in which he ever had the warmest interest and for which much of his best work was done. He saw in it the largest opportunities for the furtherance of scientific therapeutics in so far as this relates to the use of drugs.

With the strong conservative strain in his liberal mental organization it was impossible, however, for him to follow those among his leaders and associates who based their practice and opinions solely on the results of unsifted clinical experience, or who adopted as their guiding theories those of Hahnemann's hypotheses on which he himself had laid the lesser emphasis. In order to bring directly before his American colleagues the chief sources and principles of the homoeopathic method, and at the urgent solicitation of Dr. Hering and the publishers, he set himself the laborious task of retranslating the Organon, a task which, although thankless in many respects, was yet without question the means of giving a distinct and strong direction to his convictions. It was the need of mastering and assimilating fully the spirit and meaning of the great reformer for the purpose of rendering these in intelligent language, that led Dr. Wesselhoeft to the point of view for the soundness of which he continued to labor throughout the remainder of his life, though it carried him far away from those to whom he had been bound by the closest personal and professional ties.

In possessing himself of a point of view free from disturbing preconceptions he was inspired to pursue an independent course of exact inquiry along two separate lines. What he demanded for himself and for the reform to which he was devoted, was greater certainty to be derived from evidence in accord with the methods and results of science as evolved since the days of Hahnemann. With such ends in view he undertook original work of a kind most needed not in homoeopathy alone, but in all pharmacotherapeutics. He felt impelled to determine, as far as possible, the limits of divisibility of drug matter as prepared by our methods of attenuation, and to study the effects of calculable amounts of metallic and other mineral substances in a state of extreme subdivision, studies of the utmost practical and scientific importance not alone in consideration of homoeopathic practice, but of the light shed in recent years by the foremost physicists of our time on the power of the infinitely minute. These studies so full of promise, so urgent and yet so utterly neglected by the old school he pursued for many years with unflagging zeal through ill health, domestic affliction, and all his numerous professional duties. His microscopic investigations undertaken with infinite pains and every possible safeguard against error, led him independently to conclusions in harmony with those of greater scientists who, commanding the amplest means and most perfect methods of research, together with the widest knowledge, could carry their inquiries far beyond the point attainable by the busy practitioners, who lacked both expert assistance and adequate laboratory facilities. Among his most important contributions to the work of the American Institute are to be mentioned his papers on the Microscopic Examination of Triturated Metals and Other Insoluble Substances; on the Proofs of Drug Presence and Power in Attenuations Above the Sixth Decimal, as Furnished by the Spectroscope; on the Presence and Dimensions of Particles of Metals in Triturations; on the Effects of Trituration on Wedgwood and Porcelain Mortars; on the Trituration of Glass and Copper in Demonstrating Divisibility; Why Prolonged Grinding Makes Triturations Darker—not to speak of numerous shorter papers on allied subjects.

That his conclusions regarding the limits of divisibility of matter should have met with little acceptance on the part of the majority of his colleagues, indeed, that they should have aroused the most strenuous opposition, was most natural in view of the extreme difficulty surrounding the questions at issue and of the general backwardness of knowledge on the subjects involved. But it is most certain that the consideration of these same questions, brought by him into such marked prominence, have tended in a most decided manner to raise the character of the discussions in our leading homoeopathic bodies,* and to stimulate inquiries both in this country and in England which have by no means reached their final settlement.

The same spirit of exactness, the same deep inward prompting to eliminate error and gain a positive basis for our knowledge of drug power, ruled his efforts in the proving and reproving of drugs on which he spent no little time and self-sacrificing labor. It was a thought and endeavor worthy to be recorded and to be classed with the best scientific efforts of the day, to compare our accepted provings with others made with absolutely inert substances. Other men like Drs. Hughes and Dudgeon in England, Heinigke and Sulzer in Germany, had subjected the earlier provings to critical scrutiny from what may be called the literary point of view, by studying the original sources and records, and thus casting out what was plainly of an untrustworthy character. But none had attempted actual control provings in order to test the genuineness of countless subjective symptoms without which we recognize that no proving can have value. It was not to exclude these, but to determine in how far they belonged to the positive drug effects, rather than to the self-deceptive observations of unscientific provers, that the work was undertaken. It had its source in the innate honesty of the man who dared to probe to the bottom the beliefs in which he had been reared, and which were so generally accepted among his colleagues as beyond question. His Reproving of Carbo Vegetabilis; his Critical Analysis of Provings of Chininum Arsenicosum, Adonis Vernalis, Lilium Tigrinum and Zinc; his Rules and Suggestions for the Critical Analysis of Provings, and his Demands of Modern Science in the Work of Drug Proving, all papers read before the Institute of Homoeopathy, not to mention his Reprovings of Sepia and Hamamelis with rigid control tests upon himself and a number of well-chosen students, men and women, were strictly scientific inquiries of a character to be placed beside any of which modern therapeutic research can boast and of incomparably greater value than all the animal experimentation of the pharmacological laboratories.

Here again, it must be said, he met with comparatively little hearty response from those who approved his aims, while he did meet with much opposition even of a bitter and most ungenerous kind from those who held any questioning of existing knowledge to be no better than damnable heresy. His experience in this respect was no other than that which falls to the lot of every man who undertakes the unpopular task of striving to supplant accepted belief by sound knowledge. All acknowledge however to-day, that while he seemed to make no immediate impression on his colleagues by his timely and well-directed efforts to purify our materia medica, the great work of drug proving now undertaken by the American Institute of Homoeopathy received its impetus and direction at his hands.

In addition to all these labors must be mentioned as among the most important, and as showing the confidence reposed in him by his colleagues in this country and in Europe, his coeditorship of those most monumental of all homoeopathic works, the Cyclopedia of Drug Pathogenesy and the Pharmacopeia of the American Institute of Homoeopathy. To have been chosen to participate in works laying upon their authors such heavy responsibilities, and calling forth such wide and detailed knowledge, was an honor to which few could aspire.

Of his many kindnesses to students and young practitioners seeking for light, his modest and untiring disposition, and his thorough honesty of purpose, all who knew him are now eager to testify. His merit was not that of the brilliant mind working effectively with accepted data and gaining popular applause, but the merit of the scientific thinker and investigator whose sole aim is to approach the truth and who seeks it unremittingly through the countless discouragements of feeble health, care, sorrow, loss of friends, and the opposition of those for whom his best energies are expended. His personal qualities, his active interest in all the burning questions of the day, his interest in and devotion to his patients, will soon be forgotten. His labors and results will endure until therapeutics enter upon a new phase in which all that is now held to be good shall be cast aside.—*New England Medical Gazette*, January, 1905.

CLINICAL RECORD.

Foreign.

THE STRANGE CASE OF THE REV. MR. HANNA.

Every mature reader of Robert Louis Stevenson's uncanny portrayal of the dual presonality of Dr. Jekyll and Mr. Hyde must have reflected that there is something strangely true to life on this tale; that in every individual there seem to be two natures, oftentimes antagonistic-the one to the other. In the now almost obsolete works of Carpenter, these phenomena were attributed to the lateral halves of the brain sometimes working independently of one another, the more powerful half dominating the organism, while the other remained impotent.

We have now a scientific consideration of a very striking case by Dr. Boris Sidis in the book entitled *Multiple Personality: An Experimental Investigation into the Nature of Human Individuality.* In this work, Dr. S. P. Goodhart is a collaborator.

The Rev. C. Hanna, while returning from a drive on the evening of April 15, 1897, "stepped aside" from the accustomed order of things by plunging headlong from his carriage, and thus "became, strangely enough, a man endowed with preternatural intelligence, but from whose mind all knowledge of human and terrestrial relations had subsided."

On awakening to the new personality, a terrific encounter took place with his physicians. He could not recognize them as his fellow-men. Now fully recovered, he remembers distinctly the events in this crisis of his life. In his autobiographical sketch he declares: "The first return to consciousness may be understood only by comparing it to the birth of a person possessed immediately of matured mental and physical functions." During the first rudiments of consciousness there was absolute lack of knowledge that an outside world was in existence. The eyes were closed; there were no sounds to be heard; the power of motion was not yet known. We quote him:

"Simple memory would represent it as a period of many years, so great was the mental activity and so wonderful were even the meagre facts of consciousness. But the fact that absolutely no motion was made, even of the eyelids, and that no sound was heard, although the room was full of watchers, apparently indicates that the state was of but an instant's duration. In fact, later experience which left on me the impression that would now be made by the life-happenings of many years, really continued only for a few moments, according to the positive testimony of others who observed them. Thus, if memory, with its present habits of comparison, was to be trusted for a verdict, my life for the first few days would be declared to cover a few centuries, and this impression has been corrected only by force of the most vigorous reasoning on my part and the exereise of the will in forming beliefs."

We find here, in passing, an odd confirmation of the Kantian dictum that time and space are but *a priori conceptions* of reason, in no wise related to experience; also of the fact that in dreams, happenings that would consume long periods of time are conceived in a single instant.

In this former state Mr. Hanna was a fine scholar, and architect, a journalist, an excellent musician, and a thorough musician. And we hasten to add that no Mr. Hyde-like propensities of an evil sort occurred during his peculiar experience. He was twenty-three at the time of the accident and was then attending to his ministerial duties. He was of good family, sociable, well liked by his congregation, and was an altogether sensible and normal man.

In his new state, his eyes were opened to a world of moving shadows. He found himself capable of movement; the shadows he thought a part of himself. He put forth his arm, which came in contact with one of them, and to his alarm, it resisted. The shadows multiplied and the force against him redoubled. He had, in fact, attacked his physicians with herculean strength, and in the struggle he worsted them. He was, however, finally bound, and put to bed. No one yet understood his predicament—from his viewpoint—and they thought him insane from the blow on the head received by his fall. He recognized neither objects, words, or persons, nor dimensions—length, breadth and depth; nor the color of objects. External things formed a great picture against his eyes like a painting, with no sense of spatial relations. There was no conception of the flow of time. External movement alone fastened his voluntary attention, and seemed to fascinate his gaze. He became intensely hungry, but could not interpret his desire; he had to be fed by fluids placed far back into the pharynx.

He could not understand human speech. But after the struggle with the doctors, his intellect and perception, sharpened by the precariousness of his position, grasped the notion that there was a difference in persons, and that by lip movements and sound productions, they elicited from each other responses which were frequently followed by definite actions. Without even slightly knowing their meaning, he imitated their suggestions and observed that thereby he attracted attention.

They had to teach him to talk like a child. He made great progress, learning first the names of concrete objects, and very soon the expression of abstract ideas. In six weeks, the secondary personality was so trained and educated, that he could explain lucidly what had taken place since the accident. He naively described his discovery of himself as a human being. He had been kept in bed and those about him were dressed. "I said people"; that meant them all. "Mr. S. told me that I was people, and he told me I was a man—same as he was; and I did not believe that. I began to ask him why I could not have clothes on like other people. That was after I had learned to talk a great deal."

It was difficult for him to differentiate the sexes: they were "two strange kinds of human beings. He was engaged to a lady, whom in his secondary state he did not know. He was questioned whether any sub-conscious feeling of recognition and love could be revealed:

Q.—Do you enjoy rather to look at a nice-looking woman than at a nice-looking man? A.—I do not know; it does not make so much difference. If it is a picture, they must be very nice-looking to enjoy, but if it is a person, I like to hear the voice. The voices of women are softer and more pleasant to hear.

"Q.—Would you have any desire to kiss or embrace a woman whom you liked very much? A.—Yes, my mother or sister."

With life outdoors his mental horizon expanded amazingly, and the new personality became speedily accoutred with all the aids of prolonging and preserving its identity in the world. But once his mind let go its hold on some unimportant matter, and, for the first time in his new existence he learned what it meant to forget. This profoundly impressed him and made him comprehend the references by friends to his obliviousness of his former life. Then the well-directed efforts of his physicians resulted in disconnected pictures, scenes in his previous existence, being aroused in his dreams while sleeping. From this time their efforts centered on restoring the primary personality. Among many experiments that were made was this: During a restless early morning sleep, questions were put to him in his half-awakened state, and his answers showed that he was dreaming over old scenes. He was describing a climb up Mount Jewett, when suddenly he was asked if he knew his fiancee. He laughed, regarding the question as irrelevant, and said, "I don't know her yet; I know her later. From her to Mount Jewett is a year." This was a correct statement. The personality was in a peculiar psychic state, in which it was able to foresee its future life. It was as if there were prescience of what was to take place in the distant future.

Mr. Hanna was one evening taken to new York, where the stimulation of new surroundings had the effect that early the following morning he recovered his submerged personality. He described his ride from Meriden, Conn., on the night of the accident, and complained of soreness and exhaustion, which he ascribed to his fall of "last Thursday," the accident having, in fact, occurred some seven weeks before. He was told of his secondary existence, of which he was ignorant, and within an hour, elapsed again into that state.

Then came the strangest feature in this case, which strongly resembled that in Stevenson's story. Dr. Jekyll, we recall, was restored by a powder, which Hyde took, until finally the more powerful personality of Hyde prevailed. A drug (cannabis indica) was also used in the case of Mr. Hanna, but with this difference—that partly by the unremitting efforts of his physicians, and partly by his own will, his original personality gradually gained reascendency over the second nature and won the psychic struggle.

In his dual life Mr. Hanna alternated until on June 14, while visiting a psychological laboratory, he for the first time caught a glimpse of both personalities simultaneously, and yielded to the inducements of his second nature. His responses to persistent questioning during the transformation, "indicated now the presence of the primary, now that of the secondary state, and now of the simultaneous presence of both." There was an intense mental struggle, which was fought out that afternoon, where he lay, on a couch in his physician's office, "in a state of agonized abstraction. It was a bitter and a critical period of his life." Two alien individuals had arisen in his consciousness to dispute the possession of his mind, each claiming to be his veritable self. To renounce either was to blot out his own existence. The result was a reconcilement of both and their fusion. States Dr. Sidis :

"These two formed individualities, seemingly mortal foes, confronted each other for a long period of time, and in their very struggle recognized their intimate relationship, if not their relationships of identity. It seemed as if each said to the other : 'Thou art my mortal foe, and yet thou art bone of my bones and flesh of my flesh!' For each personality to crush, to suppress the other was now out of the question ; the difficulty, the problem, for them, was how to form a unity ; how to become synthetized into one conscious personality. The task was a difficult one, and could be achieved at a loss of much mental energy. Hence, the sluggishness of psychomotor activity, the slowness of movement, of speech, of reactions to external stimuli ; hence, the retardation of the whole stream of consciousness," etc. Mr. Hanna has fully recovered, the detached portions have become dovetailed, the two sharply-defined personalities have been fused into one normal personality.—*Medical Times*, February 1905.

Gleanings from Contemporary Literature.

DRUG TREATMENT IN THE LATER STAGES OF PHTHISIS.

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Mr. President, Ladies and Gentlemen,—This subject conveniently divides itself under two heads, firstly, drug treatment for modifying, or, if possible, arresting the tuberculous processes at work in the lungs, and, secondly, drug treatment for relieving the various distressing symptoms peculiar to advanced phthisis. My paper is to consider the first of these two heads. So, to open the subject, I advance the proposition: *Do drugs ever arrest the disease in the later stages of phthisis?*

It is generally supposed that, except for relieving symptoms, drugs are valueless at this period of the disease, and that to arrest or modify advancing tubercular destruction of lung tissue is impossible by ordinary medication. But if it is a fact that Nature occasionally cures cases of advanced phthisis without any special treatment, surely we may hope to aid these natural processes by drug medication so long as a cure is possible? I wish, then, to raise the question to-night as to whether this can be done, and to produce evidence of apparent drug action in severe cases, and to bring to your notice one drug in particular which I have used with marked effect in such conditions. It is my hope that in the discussion some of you will help still further by giving your experiences with different remedies, and your opinions as to their action on the diseased lung tissue.

As we are only considering drug treatment, I shall take it for granted that open-air conditions and proper feeding are carried out in every case, for without these little help can be expected from medication, especially in the later stages. The cases in question are those which, in spite of perfect hygienic conditions and feeding, the tubercular processes still advance in one or both lungs, and the lung tissue is breaking down into cavities. There is progressive emaciation, or continued evening temperature, the expectoration is profuse, muco-purulent, and contains elastic tissue. Under such conditions have we any homœopathic remedies that can arrest the disease?

It is not always possible to be sure that the drug has produced the cure, for it is occasionally but rarely seen that an advanced case will take a turn for the better and get well irrespective of drug treatment. We must then experiment on a larger proportion of cases, when, if improvement sets in within a day or two, certain remedies being given, and continues in some cases until a cure results, one is justified in assuming that the drug administered has had a curative action. In my experience we have at least one drug that will frequently act in these advanced cases, and since it is but little used amongst us in this condition I desire to bring it to your notice this evening. But it will be well first to briefly review the present position of drug treatment of phthisis in both schools, to see at what point in the development of a curative system each has arrived at.

THE PRESENT POSITION OF DRUG TREATMENT FOR PHTHISIS IN THE OLD SCHOOL.

I am not aware that our orthodox friends have any drug which cures tubercle in the lung, when once its formation has become sufficiently advanced for positive diagnosis. On the other hand, Nature cures innumerable cases which are never suspected of phthisis during life, as shown by *post-mortem* examinations. Beyond tonics and cod-liver oil, the only drugs generally of value in common use are arsenic and creasote, with its congener guiacol. It is doubtful if the former really cures by itself, although, when in the form of iodide, and prescribed homœopathically, it certainly does in very early cases. Guiacol, for which so much is claimed, seems to retard the breaking down of tubercle, to relieve bronchial symptoms, and to cause the bacilli to disappear from the sputum, but it cannot, I think, be said to cure tubercle, or to prevent its formation. But since, like all oleo-resins it is eliminated by the bronchial mucous membranes, it is a drug of undoubted value in many cases, especially those of a catarrhal nature. These drugs, arsenic and creasote, with perhaps the hypophosphites, are the only ones for which any claim of curative power can be advanced, for I need not remind you how all the vaunted cures have failed, and that the position of phthisis as to curative treatment by drugs, inhalations, injections, &c., seems to be little, if at all, further advanced than it was before the days of Koch.

THE PRESENT POSITION OF THE HOMŒOPATHIC TREATMENT OF PHTHISIS.

I am informed, to my sorrow, that certain adherents of our own school decline to admit that tubercle of the lung can be cured by drugs. This is contrary to my experience. A certain proportion of cases of undoubted phthisis in the early stages, in which bacilli are present in the sputum, without any change of hygiene or diet, will commence to improve directly the suitable homœopathic remedy is administered. Surely our out-patient practice affords evidence of this? Doubtless, there are many cases which do not so respond, their environment being too unfavourable. Perhaps in some we may confess failure in selecting the proper remedy, often a very difficult problem to solve. Occasionally such a case will fall into other hands and receive benefit from old-school tonics, to the detriment of our reputation. It is certainly better to do good by tonics than to fail homœopathically, and therefore I do not hesitate to use certain so-called tonics when homœopathic indications fail. Nothing, however, does such marked and permanent good as the homœopathic specific remedy appropriate to each patient, when carefully selected. In most curable cases its administration will turn the scale, and improvement commence at once. Even when open-air treatment and extra nourishment are impossible, many cases of early phthisis are cured by such drugs as iodide of arsenic, phosphorus, calcarea carb., iodine, and others.

THE ACTION OF DRUGS ON THE LUNG TISSUE IN THE LATER STAGES OF PHTHISIS.

When, in spite of a good climate, with open-air treatment, perfect hygienic conditions, and suitable feeding, the disease continuously progresses, do drugs ever arrest the mischief? If lung tissue is increasingly destroyed, and, under these favourable conditions, cavities form and enlarge, with fresh areas of softening and breaking down, can our remedies do permanent good? Have we any specific homœopathic medicine for this stage? I look forward to hearing your answers to these questions, meanwhile offering you the result of my experience. Provided the lungs only are affected, and there are no symptoms of intestinal tuberculosis, we need not, in my opinion, despair of cure, for I have seen the disease undoubtedly checked and, in not a few cases, cured by homœopathic remedies. These are not usually those drugs which act best in the first stages. Though even here, any remedy strongly indicated by special symptoms may possibly prove curative. But, as a rule, beyond relieving cough and palliating pain or gastric catarrh, one seldom gets permanent benefit from arsenic, phosphorus, calcarea and other drugs, which help so markedly earlier in the disease.

Soon after commencing practice in Bournemouth, I was confronted with so many cases of advanced and seemingly hopeless phthisis, that after trying with little results remedies usually recommended in this condition, I began a search *de novo* through our Materia Medica, to see if any drug provings contained symptoms in any degree suggestive of this condition. This was not done in the expectation of finding there signs of advanced lung mischief, except possibly in poisonings, but my hope was for indications that if it were pushed to extremes some poison might possibly produce actual lesions resembling late phthisis. The first drugs that arrested my attention in this connection were iodine and gold. The poisoning cases in the "Cyclopædia of Drug Pathogenesy", certainly suggest that, if pushed to extremes, conditions somewhat resembling advanced phthisis might result from their use. I need not remind you that these drugs are of value in all stages of phthisis, and also that they have been celebrated as used in a certain supposed cure for the disease known as the Shurley Gibbes' treatment. Certainly I find iodine in 5 drop doses of the 1x. tincture, given in milk, of distinct value in advanced cases. But I do not think it has ever cured a case in my hands. Much the same may be said of *aurum*, which seems to act best as the *iodide*, in 1 or 2-grain doses of the 2x. trituration. This drug has a more decided action on lung tissue than iodine, and will sometimes start remedial processes in apparently hopeless cases. But its action is very uncertain. However, with the exception of the drug I am about to mention, iodine and aurum, and their combined salt, seem to me to have more effect upon the lung in late phthisis than any other drugs that are usually recommended.

A MORE PROMISING REMEDY FOUND.

Continuing a search in the Materia Medica, I soon perceived that *stannum* stood prominently forward, having—as you know—a number of definite chest symptoms, bearing a close resemblance to those of advanced phthisis. These have been long recognised by homœopaths, and have led to its use in bronchitis and in so-called catarrhal phthisis, also in the early stages of pneumonic phthisis, but it is not usually recommended in late phthisis. The provings of stannum in the Cyclopædia are not very helpful, but in the *Materia Medica Pura* Hahnemann has recorded a number of most suggestive symptoms. He mentions also that powdered tin was the basis of a quack remedy for consumption, largely used in his day, and he credits it, apparently, with cures of advanced cases. There can be no doubt that *stannum* produces a more perfect picture of the latter stages of phthisis than any other drug in our pharmacopœia ; and it is probably only by the stethoscope and microscope that the difference between a condition of severe and prolonged tin poisoning and one of advanced tuberculosis could be distinguished. Although this condition is probably only catarrhal, one might resonably expect it to run into true phthisis in a person of tuberculous tendencies, for bacilli would soon find a nidus under such favourable conditions. It seems to me that this is the nearest approach to the production of tuberculosis by a drug poison that we are likely to attain. However this may be, the same apparent similarity obtains between the symptoms of stannum poisoning and phthisis that has led to the successful use of all our homœopathic remedies. With reference to symptoms so marked in advanced phthisis, I may mention that stannum produces profuse muco-purulent expectoration, progressive weakness and emaciation, with evening fever and severe night-sweats, a combination of symptoms not found in the pathogenesy of any other drug with which I am acquainted.

Having decided that, by the law of similars, stannum promised good results in late phthisis, the best mode of using it had to be ascertained. From the analogy of other drugs useful in this disease, it seemed probable that one of the salts of tin would act better than a trituration of the metal. Of its various salts the iodide first suggested itself, for, with the exception of phosphorus, none of the non-metals produce symptoms resembling phthisis so closely as iodine. But the phosphides are unstable, and phosphates do not retain the power of the metallic radicle. Therefore iodides, having neither of these objections, are generally more useful. This is confirmed also by our experiences with the iodides of arsenic, and also of gold, as well as by the pronounced action of iodine itself. Stannum iodatum was therefore selected for experiment on these theoretical grounds, and six years ago I first commenced using it in the later stages of phthisis. The results in a large number of cases have been distinctly satisfactory, and when other remedies failed I have again and again seen reaction occur under stannum iod., and improvement set in, even in some apparently hopeless cases, so much so, that since that time it has taken the same place with me in the treatment of advanced phthisis that iodide of arsenic takes in early phthisis; whilst iodide of gold occupies an intermediate position. These three drugs are often my sheet anchors in the treatment of this disease. And although I have used stannum in early phthisis it has usually disappointed me, except where the peculiar bronchial symptoms were present; but in later phthisis it has given me many gratifying successes, no other drug seeming to have so marked an action on breaking-down lung tissue. When there is no tubercular enteritis, and the evening temperature under open-air conditions does not exceed 102°, I nearly always obtain some effect from its use, which soon becomes evident to the stethoscope by improvement of lung sounds, decrease of expectoration and lowering of temperature. Of course, this improvement is often only temporary, although sufficiently marked to show the power of the drug. Nevertheless, a certain proportion of apparently hopeless cases not only begin to improve directly stannum iodide is given, but continue to do so, and make more or less real recoveries. I can recall several such patients who are alive at the present time after some years, and whose lives, in my opinion, were saved by the use of this remedy.

METHODS OF ADMINISTRATION.

The higher potencies, often of great value in chronic diseases, have failed to assist me in advanced phthisis, and the best results generally come from such doses as can be taken without producing any physiological effects. This applies to all three iodides—of arsenic, gold and tin. Stannum iodatum in the 2x trituration, 1 to 3 grains three times a day after meals, is my favourite prescription. In one or two cases I have found this produce gastric irritation, when the 3x can be substituted with benefit. If after a week of this no effect is noticed I give 5 drops of iodine 1x tincture in milk three times a day. This seems to start and supplement the action of stannum in a very marked degree, and will start healing processes in the lung which iodine could certainly not do by itself. I look upon this effect much in the same light as that of sulphur in chronic diseases in waking up dormant drug reaction. The iodine perhaps assists by its action on intestinal glands, which it may stimulate and strengthen, increasing their power of assimilating stannum. My observations indicate that tubercular enteritis, which seals the doom of so many victims, rarely attacks those who have taken a good course of iodine, and that the use in the later stages, even of fatal cases, usually prevents the occurrence of tuberculous diarrhoea.

CONCLUSION.

I shall not take up time by reading notes of cases apparently benefited by stannum iod. It is of little use to detail cases in phthisis. Owing to the fact that patients occasionally get well in all stages of a disease, irrespective of special treatment, it is difficult to arrive at results by statistics. It is a fact that every new treatment or remedy recommended for phthisis, however useless or even absurd it may finally prove, has at first been bolstered up by elaborate accounts of supposed cures. The only drugs that are of real help have been proved to be so by the united observations and opinions of many medical men, and so have received general recognition. It is by this test alone that my views as to stannum iod. must stand or fall. Those of you who know something of the work done at Bournemouth, especially at the Hahnemann Convalescent Home, will be able to judge whether the ideas I have advanced are worthy of attention; and my hope is that you will try the remedy yourselves, and presently acquaint us with your results.

Until the publication of our valued colleague's (Dr. Clarke) "Dictionary of Materia Medica," I was not aware that the iodide of tin had been previously recommended in advanced phthisis, but I am interested to find my ideas independently corroborated by two American physicians, Dr. Haines and Dr. Youngman, both of whom have used the drug with marked success in certain cases.

In conclusion, I may briefly suggest the ideal treatment for advanced phthisis, according to the present state of our knowledge, as follows: (1) Absolute open-air treatment in the best climate obtainable. In this country Bournemouth or Ventnor are undoubtedly first; high altitudes, and especially bleak hill-tops, being strongly counterindicated in our climate. (2) Full feeding—or superalimentation—according to the digestive powers of each patient. (3) The administration of the homœopathic specific remedy most suitable for each case, but which, in the absence of other indications, will frequently, I think, be found in stannum iod., with or without the addition of iodine. More cases of this often hopeless, and always terrible, disease appear to me to recover under these conditions than under any other methods of treatment that have come under my observation.

Dr. Dyce Brown, in opening the discussion, said that he had never systematically used stannum in cases of late phthisis, although he had used it in other circumstances. He had never used the iodide of tin, but he thought that drug should be well tested in order to ascertain its merits fully. He remembered a case of galloping consumption, where the physical signs were well marked, where he gave iodine in the 3rd decimal dilution three times a day; an improvement took place after a few days, and the patient steadily progressed, until she became perfectly well.

Dr. Clarke said Dr. Ord had given in his paper some valued experience of his own, which was the kind of thing they wanted at the Society. It was quite legitimate in homœopathy to make use of the imagination, and it was quite legitimate to use the individual effects of two remedies combined in chemistry in the way Dr. Ord had done in selecting the iodide of tin in preference to any other preparation of tin when he wanted to get the effects of the metal. They were sometimes apt to be narrow in their views of what homœopathy was. Homœopathy was a very elastic thing; it could be used on crude indications or on high indications, and it was perfectly legitimate for prescribers to make their choice of what indications they would use. If they were practising homœopathy on broad indications it would probably be safer to come nearer the crude drug in prescribing; if, on the other hand, they were using homœopathy with fine indications in individual cases, better results were probably obtained by going pretty high. It was also quite legitimate to practise homœopathy from the clinical side, as Dr. Ord had done, in taking the main conditions that were present in all cases of advanced phthisis and selecting the drug that came nearest to the picture. This was very much on the same lines as Hahnemann worked on in selecting the remedy for the genus epidemicus of any malady prevailing for the time being. In that way a good deal of trouble could be saved by generalising. But in order to make their generalising effective, homœopaths must be able to individualise first, and individualise last, if necessary. He (Dr. Clarke) asked if Dr. Ord had used tuberculin in cases of advanced phthisis. In the latest stages of phthisis he had noticed that tuberculin was apt to leave aggravation; but in other cases it had done very good service.

Dr. STONHAM said he had never used stannum iodide, although he had used stannum, being principally led by its night-sweats and expectoration. Quite recently he had been treating a case of phthisis where night-sweats were troublesome. In order to alleviate that symptom he gave stannum 12, and was surprised to find how the patient's condition was improved in temperature, expectoration and night-sweats. An interesting point made by the author was the fact that sometimes when stannum iodide had not taken effect an additional dose of iodine in milk caused the drug to have its usual beneficial effect. Might not that be because the iodine acted, not in stirring up the system, but simply in rendering the stannum more soluble? If stannum iodide 2x were given, and anything occurred in the stomach to decompose the drug, letting the iodine free, a certain amount of stannum in a very insoluble form was in the stomach, whereas by adding an additional amount of iodine the iodide of stannum was preserved, which must be more soluble than the pure stannum. He thought possibly some of the good done might be due to the chemical action produced in that way. Nearly all of them now used tuberculin in cases of phthisis at some stage or other, and with a certain amount of benefit, in his experience. He generally gave tuberculin 30 once a week, early in the morning, and in the great majority of cases on questioning the patients he found they were not quite so well; they were more languid and tired, and generally had more cough and expectoration, showing distinct aggravation, but on the following day they were usually better.

Mr. DUDLEY WRIGHT spoke from the pathological point of view with reference to the question of tuberculinum. Dr. Clarke had mentioned that he found tuberculinum useful in the later stages of phthisis. He (Mr. Wright) gathered from a personal communication he had received from Dr. Ord that he was not favourably impressed with its action in cases of advanced disease. He (Mr. Wright) believed the explanation was that in the later stages of phthisis it was not only a question of tuberculous infection, but of a mixed infection of both staphylococcus and streptococcus. If cases were to be improved at all by the administration of the toxins produced by the various bacilli which attacked patients, they must be treated with the toxins both of the tubercle and of the other germs which were included in the diseased process.

Dr. CLARKE said that bacillinum contained all.

MR DUDLEY WRIGHT, continuing, said that Dr. Clarke had raised a very important point. Personally he was not aware that any direct experiments had been made with bacillinum, nor that it had been carefully examined to see what it contained, but if Dr. Clarke and others were satisfied with it, well and good. If anybody would like to try a preparation, which was made with some knowledge as to what it did contain, there was such a preparation in the laboratory of the Britrish Homœopathic Association, one made from a pure culture of human tubercle combined with a certain amount of staphylococci and streptococci in broth, from which any dilution desirable could be obtained. At present no experiments had been made with this preparation. By the genius of Professor A. E. Wright, late of Netley, now of St. Mary's Hospital, a method had been obtained by which the amount of improvement which took place in the blood in the direction of phagocytosis or the destruction of the various bacilli by the patient's serum could be actually registered. That was of the very greatest importance. During the coming winter it was hoped that experiments would be made in the laboratory by the aid of this method; but at present the stock of culture was not quite complete, as it took three or four months to get the proper amount, and the proper strength; but he hoped before the summer session began certain data might be obtained to go upon, and that they would know what action stannum actually had on the blood of the patient. Dr. Stonham had raised a very important point with regard to the aggravation which took place under the administration of tuberculinum. Professor Wright had shown that when the toxin of staphylococcus or streptococcus was injected into a patient, the patient had what was called a negative phase of his phagocytic power, *i.e.*, supposing his white blood corpuscles were each capable of taking up a dozen staphylococci before the injection, for a few days after the injection of the poison the white corpuscles were actually worse off with regard to their phagocytic powers than they were before, *i.e.*, a negative phase occurred in which the white corpuscles were unable to account for more than two or three staphylococci; but after a period of three or four days a positive phase took place, and during that positive phase the patient's power of destroying the staphylococci increased very considerably up to a certain point. If another injection was made, a drop again took place and then another rise, until finally the rise was pretty well maintained. That, again, was one of the numerous illustrations they had from old school sources of the homœopathic action of remedies, and he hoped they would be able to make some use of that knowledge. The whole subject was one which had only just been properly worked out by Professor Wright and his colleague, Captain Douglas, of the Indian Medical Service. He (Mr. Wright) had had the opportunity of going through the process with them, and seeing the method they pursued, and hoped during the coming winter to carry out some of their methods in the laboratory of the Association. One of their first objects would be to try such drugs as iodide of arsenic, iodide of lime and iodide of stannum, which the author had mentioned in his very interesting paper.

Dr. **Watkins** said that he had also been interested in Professor Wright's work in studying tuberculosis from the blood point of view. Professor Wright found in making his observations that the phagocytosis did not depend so much upon the potency of the leucocytes as it did upon the blood serum. He found that the blood serum contained certain substances which were bacteriotropic, which produced a certain effect upon the tubercle bacilli, by means of which they became more readily susceptible to the leucocytes; and then by introducing a certain substance into the blood, more especially Koch's tuberculin, he was able to raise the bacteriotropic action of the serum very much indeed. Professor Wright gave it the name of opsonic, from the Latin word *opsono*—I cook, I prepare pabulum for. The system of registering the opsonic action was a very ingenious one, and it was possible to test the effect of any drug; it gave a more delicate reaction than the stethoscope, or the observation of the temperature curves, and so on.

Dr. **Searson** asked whether Dr. Ord had any rule which would guide them in deciding whether a patient with a temperature could be allowed out of doors, and if so, what the temperature was? He saw one of his patients three weeks ago, who then had a temperature of 102·4°; he confined him to his room in bed, having all the windows wide open, and the temperature went down to 99° in the evening and 97° in the morning. The patient had been out for the last three days, and the temperature had gone up to 101·4°. What course should be adopted in such a case? He gave the patient tuberculinum 200, once weekly, which appeared to be very helpful.

Dr. **Byres Moir** said he had had two experiences of the aggravation caused by the use of tuberculinum. The first was in an old case of pleurisy, followed by hard tuberculosis in the lungs, but for some weeks there had been no rise in temperature above 99°. He gave the patient one dose of tuberculinum 30, and the temperature rose the same day to 103°; it then fell, and for a week afterwards there was no rise. In the second case he gave a patient, who was suffering from glycosuria, with phthisis in both lungs, one dose of tuberculinum 30, with the result that within two hours of the dose there was a decided chill, and the temperature rose to 103°.

Dr. LAMBERT said that he could bear out what Dr. Searson had said. In almost every case of phthisis he gave tuberculinum 200, once a week, and had never heard a patient complain, in fact, a number said they felt better after the weekly dose. He generally gave it at night.

Dr. GRANVILLE HEY raised the point as to how drugs acted. When he first became House Physician at the Hospital he used to wonder why arsenicum iodide was given, seeing there were no definite provings of the drug, although to a certain extent the action of arsenic and the action of iodine were known. The same remarks applied to tin, iodine, or gold. Were they justified in deducing because arsenic produced one effect and iodine another, that when given in the compound they would produce their individual effects? Chemically one knew that compounds, as a rule, had very little resemblance to their component elements. If, then, their physical characters were very much changed, were they justified in expecting the compound drugs to produce the individual effects of their constituents? If so, were the drugs again reduced to their component parts in the body?

Dr. ORD, in reply, thanked the members for the kind reception they had given his paper; he considered the discussion which had taken place would be of far greater value than anything he had said. His experience of tuberculin was that if a dose of 30 or anything under 30 was given, aggravation was frequently caused. He had not used it above 30. He had always been disappointed with tuberculin; a reaction might be obtained, but he had seldom seen any genuine effects from its use in the doses in which he had given it. To a great extent he had ceased using it, because his experience was that it failed to exercise any curative action in advanced phthisis, although it might do so sometimes in early cases. He thought the reason was the one suggested by Mr. Dudley Wright, that tuberculin was not homœopathic to the condition of advanced phthisis, but it was to some extent to early phthisis.

Dr. CLARKE asked Dr. Ord which preparation he used.

Dr. ORD replied that he used Koch's. It seemed to him that it was only homœopathic to the tuberculous part of the poison, and in advanced phthisis that was of the least importance. Patients did not die so much from tuberculosis in advanced phthisis as they did from septicæmia. This was shown by a case he had under the action of stannum iodide, in which the patient's lungs were improving under the stethoscope, also with regard to the amount of expectoration, and so on, but the patient was dying while her lungs were improving The fact was that many patients died from secondary septicæmia, and not only from the tubercular condition of the lungs, and for that reason some preparation was required, such as Mr. Dudley Wright has suggested, which contained the products of all the poisonous elements in the case as far as they could be obtained. Bacillinum might fulfil this condition, tuberculin did not. Dr. Hey had raised the question as to whether they had the right to assume that drugs used in combination could be used homœopathically without any provings.

One did so only with such drugs as had symptoms pointing in the same direction; one would never combine two drugs having opposite sets of symptoms. He preferred the iodides of arsenic, gold and tin for the reason he gave, that iodine had a large number of symptoms corresponding to phthisis, and that with the two drugs together more powerful action was obtained than from arsenic, gold, or tin, by itself; the one supplemented the other, because all the symptoms were pointing in the same direction. He thanked Dr. Dyce Brown for mentioning the case of advanced phthisis, which was apparently cured with iodine; it was very interesting and bore out what he had said. He sympathised and agreed with Dr. Clarke's remarks as to high indications or low indications. He carefully said in his paper that he limited the use of tin to those cases in which there were no decided indications for any other drugs. He hoped he was a homœopathist first of all, and his homœopathicity extended to any drug that would cure, even in advanced phthisis, if he could find it, but when he failed to find a drug which was indicated he fell back on a drug which one hoped would be homœopathic, because of the general condition of things rather than the more minute symptoms. In reply to Dr. Searson, when patients had a high temperature, *i.e.*, over 100°, absolute rest of the being was desirable. If he had patients with a temperature of over 100° he stopped them walking about, put them in bed, and kept the lung at rest. Fresh air was the best thing the patients could have in all stages, no matter what the temperature was. Provided they were kept perfectly warm in their bodies, it did not matter how cold the air might be that they breathed.—*The Journal of the British Homœopathic Society*, January, 1905.

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ওলাউঠা চিকিৎসা।

ওলাউঠা বা কলেরা অতি সাংঘাতিক পীড়া, হোমিওপ্যাথিক মতের চিকিৎসাই ইহার একমাত্র উপায় তাহা বোধ হয় সাধারণকে আর বুঝাইতে হইবে না, তবে প্রথম হইতে রীতিমত ভাবে চিকিৎসার আবশ্যক। সেই জন্য প্রত্যেক গৃহস্থের একখানি কলেরা পুস্তক ও কিছু হোমিওপ্যাথিক ঔষধ রাখা কর্ত্তব্য। রোগীর শয্যাপার্শ্বে বসিয়া বড় বড় রাশি রাশি পুস্তক হাতড়ান অপেক্ষা ইহা হইতে অতি সহজে, অতি শীঘ্র, রোগের লক্ষণ দেখিয়া ঔষধ নির্ব্বাচন করা শ্রেয়ঃ, ইহার ভাষা অতি সরল, মূল্য—।৴০ আনা মাত্র।

সাধারণ মূল্য—মাদার টীং প্রতি ড্রাম ।৵০, ২ ড্রাম ॥৵০, ১ম হইতে ১২ ক্রম পর্য্যন্ত ।০, ২ ড্রাম ।৵০, ৩০ ক্রম ।৵০, ২ ড্রাম ॥০, এককালীন ৫৲ টাকার ঔষধ লইলে শতকরা ১২॥০ হিঃ কমিশন পাইবেন। পত্র লিখিলে সচিত্র ক্যাটালগ পাইবেন।

বটকৃষ্ণ পাল এণ্ড কোং।

গ্রেট হোমিওপ্যাথিক হল, ১২ নং বন্‌ফিল্ড্‌স্‌ লেন,---কলিকাতা।

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RAT AND PLAGUE.

(Continued from last Number p. 97.*)*

Examples of direct infection from rats infected with plague, rarely happens in man. The following case was mentioned by a daily newspaper of Calcutta, dated the 3rd July, 1898: "A good deal of interest is centering in Mr. Hill's plague seizure. The locality is as sanitary as any part here, and is away from the *bustis* or affected areas. Some light on the cause of his attack has been thrown by the following facts:- A dog, belonging to a patient, brought into his bed room a rat he had killed and plumped it down upon the bed. Mr. Hill at once threw the rat away. The dog then licked his master's hand, on which there was a slight abrasion, and plague showed itself a few days after." The noticeable feature in the case is that the rat was killed, it did not die itself of plague. Whether the rat was infected with plague remains unknown. It may be that Mr. Hill died of plague having derived the disease from some other source.

Against this sort of assumption several examples may be stated. The Arabs of Bombay who used to throw dead rats during the outbreak of the disease upon each other were not attacked with plague. Montenegro mentions of other persons without shoes who were not affected also. "In Mandvi the relative immunity of vagrants who go barefooted was noticed. Among thousands of individuals in Bombay employed in the work of disinfection, who went about all day barefooted, with their feet in the mud, there were very few cases. It has to be considered that in the soil the bacillus can not always keep up the struggle with other species or loses its virulence. Finally, there are many questions in relation to the propagation of the plague which are not sufficiently cleared up."

The various ways in which the plague bacilli may be conveyed from rat to man have been considered in the Annual Report of the Sanitary Commissioner to the Government of India for 1899. Though the insertion is a long one, yet we cannot refrain from its use, for it grasps the whole question. It is as follows: "The question as to the participation of insects in the conveyance of plague is far from settled. In Oporto one patient suffering from pustular form of plague said that his disease began from bug-bite; and it was judged that the first man attacked in Sydney had been infected by a flea-bite. It is considered probable by some that the infectivity of old rags resides in the fleas harboured therein; and it has even been suggested that man is but incidentally affected by the rat disease plague, which, but for the mediation of insects, would remain confined to rodents. Daly of Newchang has reported a case in which a servant carried out a dead rat in his hands, and was attacked by plague the following day. The shortness of the incubation period suggests the possibility of previous infection. Otherwise, similar cases, reported by Simond and by Hankin, have been noticed in previous reports. Matignon in Mongolia noted, like Yersin, a heavy mortality among flies in plague time. The chief of the Pasteur Institute, M. Duclaux, evidently believes in the likelihood of the transmission of plague by insects, as among prophylactic measures he advocated the destruction of rats, fleas, and bugs. Mueller, of the Austrian Plague Commission which visited India, did not find any evidence of the agency of insects in the conveyance of infection; and in the bacteriological part of the report since published Albrecht and Ghon state that they saw no striking mortality among flies, and that in about 700 experiments with animals they never saw infection take place by fleas, flies, lice, etc. They found, however, that flies which had been in contact with infective matter, and were then allowed to run about over the surface of an appropriate nutrient medium, left germs behind them, which developed into colonies of the plague bacillus. E. Calmette having stated that Simond had 'proved that fleas are the chief agents of infection in this terrible disease,' Nuttal replied:—

"'The fact is that Simond has proved nothing of the kind, and it is altogether premature to accept Simond's generalisations, especially when that author does not know how to distinguish one species of flea from another, and has vague ideas about the mouse-flea and *Pulex irritans* possibly being one and the same insect. The experiments of Simond may be suggestive, but they are far too few in number to base any conclusions upon. A number of experiments made by me have given negative results. Simond rides his hobby to death when he speculates about the possibility of plague bacilli becoming increased in virulence by passing through the body of the flea! He ignores the facts established by my experiments, which proved conclusively that various pathogenic bacteria are simply digested in the alimentary canal of the flea. I by no means deny the possibility of virulent bacilli escaping in the fæces, and, in fact, in experiments on bugs have proved that this is the case, but only within the first twenty-four hours after they have sucked infected blood. Numerous experiments on bugs and fleas have shown that *B. pestis*, *B. anthracis*, *B. murisepticus*, and *B. cholera gallinarum* die off in the alimentary canal of these insects. Another considerable series of experiments in which these insects were allowed to infect themselves and afterwards bite healthy animals gave uniformly negative results, proving that if this mode of infection is possible, it is the exception and not the rule. Of course when an insect that had just filled itself with infected blood is crushed upon the skin, and in the part scratched infection may occur. I express the hope that more accurate knowledge will be gained in the future upon the part played by insects, etc., in the transmission of disease-agents. It is one thing to establish facts, it is another to write fancies. The time has passed when assertions can be accepted as evidence.'

Galli-Valerio also reproached Simond with his ignorance of the flea fauna, and published an article containing descriptions and illustrations of fleas of man, of the rat, and of the mouse. He granted the possibility of the rat and the mouse being infected by their own flea, but pointed out that it had not been shown that the flea of the rat or the mouse could transmit the disease to man. Galli-Valerio also failed to induce the *Typhlopsylla musculi*, the most common flea of rats and mice, to bite himself, or even to remain long on his body; and he mentions that this was not because he is refractory to flea-bites, but because the human flea bites him readily. He noted that neither the German Plague Commission in India nor the Italian in Oporto met with instances of the transmission of plague from rats by fleas to man; and added his own opinion that if transmission of plague by fleas is a fact, it is much more probable that the transmission is from man to man by the *Pulex irritans*. Tidswell in Australia is said to have 'confirmed the observations of Simond as to the part played by fleas, and to have demonstrated the existence of plague in the alimentary canal of fleas taken from plague-infected rat'; and 'supports the view that, owing to the apparent ease with which the bacillus can be destroyed in nature, plague most likely finds the best mode of dissemination in hosts such as the rat and flea.' Nuttal's remarks quoted above may serve as a commentary on the value of Tidswell's find as a proof of insect transmission of plague. A writer in the Lancet says 'Galli-Valerio's rat-fleas would not bite him; but that proves nothing, for no flea will bite the present writer, and many other people doubtless.' He had apparently not noticed that Galli-Valerio, as quoted above from the original article, distinctly states that he is readily bitten by the human flea. Blackmore, again, is of opinion that it is only reasonable to suppose that the species of fleas which do bite human beings are as capable of conveying the disease from a diseased person to a healthy person as the flea of a rat is of conveying it from a diseased rat to a healthy one and that it is, in fact, judging by clinical experience, extremely probable that vermins play an active part in passing plague on from person to person. It has lately been brought to notice that an hymenopterous insect in Cyprus can transmit anthrax to human beings either by its sting or by accidentally rubbing off on an abraded surface infective material conveyed on its body hairs; and with regard to this Dr. Manson 'remarked upon the close analogy between the method of infection in plague and such diseases as this.' In a discussion in Berlin in October, 1899, Pfeiffer said that the experiments of Simond were not quite satisfactory, that the whole question was still in obscurity, and that in India no such epidemiological influence of insects had been demonstrable. Sticker considered it doubtful whether rat-fleas ever came on to men. Gaertner pointed out that in general the several races of fleas remained confined each to its own host-genus; but that it was not impossible that they might occasionally pay short visits to men, have a simple bite, and then go away. Battlehner declared that there were from sixty to eighty races of fleas, that each kind of animal had its own special flea, and that the flea of man was a cosmopolitan, though he was not sure that it went to rats and mice. The general result of the discussion was that the possibility of the agency of insects could not be disregarded, as it was evidently physically possible that they might be directly or indirectly concerned in the introduction of virus through the skin, or in its deposition upon food, implements and furniture. The following appears to give a fairly good account of the present position of the question. It is said to have been written by a member of the German Plague Commission in reply to an enquiry:—

"'The plague is spread in two ways—first from man to man (*a*) by contact and (*b*) by inhalation. Secondly, from the surroundings of man to man: (*c*) by contact with infected inanimate objects, and (*d*) by the transfer of the contagion from rats to man. We have no difficulty in explaining (*a*) as the penetration of plague germs through wounds or scratches, and (*b*) as the inhalation of minute germ-laden drops of moisture from the lungs of a plague patient. But the second method is less simple. No doubt contact with infected clothes is to be explained as in (*a*). But it is more difficult to understand why living among infected surroundings, *i.e.*, in an infected house, should cause infection without there having been any proved "contact." In this connection we have the disease of rats as an important factor, a factor not similarly observed in the case of any other infectious disease. Rats generally suffer from a form of plague which occurs in man very rarely, if at all, namely, plague of the intestines. When thus diseased they evacuate great quantities of plague germs. It is probable that numbers of plague cases among human beings are due to contact with evacuations of diseased rats, *e.g.*, in the case of flooring thus contaminated being trodden on by the naked foot. Less probable is the inhalation of such germs in the floor dust, because plague germs are easily destroyed by desiccation. Children often infect themselves by crawling on the floor, and then putting their fingers in the mouth, thus getting plague with neck buboes. A second possible method in which rats might convey the plague to human beings is by fleas. It is scarcely to be doubted that a flea which has bitten a sick man, and then bites a healthy man, can thus inoculate with the plague; though it is not clear that this method is as frequent as many investigators, *e.g.*, the French School, are inclined to think. This much is certain, namely, that there are from sixty to eighty different kinds of fleas; and nearly every animal rejoices in his own particular kind of flea; so also rats. Now, it is understood that fleas go from beasts to man; but it is not so certain that they will all bite man. No doubt a flea need not actually bite in order to infect. If it causes itching by crawling on the skin, and the person concerned rubs at himself to allay the itching, he may concievably rub the infected blood from the flea into his own system. It is also asserted that the fleas infecting man are of catholic tastes, *i.e.*, go over to beasts, *e.g.*, rats and then return infected to human beings. Infection by fleas becomes rather doubtful through the fact that in India the relatives of the sick have often, though not sick themselves, been taken to the hospital and have rarely fallen ill, though they most probably have brought fleas in their clothes which might have conveyed the disease from the patients to themselves. It is also on the flea theory of infection not easily intelligible why doctors and nurses are so rarely attacked. The question of infection of plague by fleas cannot therefore be readily answered at present. The fact that when infected houses are once well cleaned and aired they do not give rise to further attacks also speaks against the flea and bug theory, for these are not so readily driven out of houses.'

"The idea that insects play a part in the propagation of plague is fascinating, especially at the present time, and no doubt the supposed intervention of insects seems to explain some otherwise obscure points in the epidemiology of the disease; but all that can be said at present on the subject must be mere theorising, on account of the absence of facts. There is sufficient suspicion attaching to the possible role of insects not only to justify, but to call for further research.

"While from several parts of the world (Asia, Africa, Australia) reports have been received of the discovery of the plague bacillus in the bodies of rats found dead of naturally acquired plague, and while rat mortality has been noticed in connection with most outbreaks, yet cases have been recorded both in India and in Europe where there was no marked participation of rats, and at the time of a human outbreak in Russia a veterinary bacteriologist is said to have made more than three thousand postmortem examinations of rodents without being able to find the plague bacillus. In fact, the exact connection between rat plague and human plague has not yet been determined. The soil, articles of food eaten raw, and fleas, have been thought of as possible links in the chain of causation, and the benefit of evacuation of affected premises has been ascribed to the fact that the rats are left behind. In a few cases direct infection by the bites of rats have been observed. Clemow in a course of a very valuable paper dealing, among other subjects, with the relation of rats to plague, says that for the present it must be admitted that rats can and do suffer from plague under natural conditions; that they can and do act as a means of diffusing infection, and transmitting it to man; but the extent to which they are responsible for the diffusion of the disease, and the distance over which they diffuse it, are uncertain; and finally, that they are an important, but not the sole means of spreading the disease. It has, therefore been proposed to wage war against rats with traps, poisons, suffocating gases, artificially induced epidemic diseases. Loeffler, Laser, Mereshkowsky, Issatchenko, and Danysz, all isolated from cases of spontaneous disease in mice microbes capable of producing epidemic outbreaks in these animals; but only Danysz so far apparently has rendered his microbes regularly virulent for rats. The practical experiments in ridding country sides of field mice do not seem to have been uniformly successful, and do appear to have required some amount of care and skill; and the question may be, not whether rats are to be destroyed, but whether it is practicable to destroy them. It has been somewhat pertinently asked, 'If the plague bacillus, to which rats are so extremely susceptible, does not exterminate the rats, why is it expected that these other microbes will do so?' However perhaps keeping down the number of rats by the use of a microbe not pathogenic to man, might have some effect in checking plague. On the other hand, it is not known whether the absence of rats might not give opportunity for the increase of some other evil."

(To be continued).

REVIEW.

Homœopathic Directory, 1905. Published by Homœopathic Publishing Company, London.

The little book contains the big list of Homœopathic practitioners all over the world. It may not be complete, but the completion rests with the practitioners than with the publishers. The names of Homœopathic practitioners in India have been allowed too little space which creates confusion. Some of them are mis-spelt and misunderstood. In the preface the name of Dr. Mahendra Lal Sircar appears as Dr. Lal Sircar. In page 79, Bose, Behari Lal is placed within the large jurisdiction of Bhowanipur. We believe this kind of fault originates out of the imperfect information sent to the publishers. The exact address should have been given. Bose, Sekhar Kumar lives at Bankipur, which is a town of Bihar and not of Bengal.

Gupta, Ganendra Nath resides at Chitpore Road. It so happens that the road commences from the north limit of the town of Calcutta and ends at Chowringhee occupying a space of about six miles. It would be all the same if his name would not have appeared. Haldar, Netye Chand has Jorabagan, without the exact address. It is a pity that the practitioners did not take care to correct the improper location. The best fun comes from the name of Mukerjea, Amarendra Nath. Whatever be the confusion in the name, it is worst confounded without the address. The name itself appears hideous. We could not find out who the person is. He advertises as the president of two homœopathic schools which are insignificant affairs, to speak the least of them. On the whole the publishers tried to make the list complete with regard to India. But the failure is due to the half-hearted co-operation of the practitioners. We wish that the practitioners of homœopathy in India will help the publishers with their names legibly written and their location definitely mentioned. It is also expected that they should buy a copy of the homœopathic directory to be cognisant of the address of their colleagues. Those who do not care to enlist their names will necessarily lose the position which is their due. It can be seriously advised that all practitioners of homœopathy in India should have a careful look, that the homeopathic directory contains the names and addresses of all duly qualified homœopathic practitioners.

HAHNEMANN ANNIVERSARY AND THE ANNUAL MEETING OF THE HAHNEMANN SOCIETY.

THE 10th of April 1905 is significant being the one hundred and fiftieth birth day of Samuel Hahnemann, the father of the New School of Medicine.

There was a large and respectable gathering of Homœopathic Practitioners and other gentlemen, in the Hall of the Indian Association for the Cultivation of Science. Among whom we noticed the following :—Drs. Hurronath Roy, W. Younan, Chandra Sekhar Kali, M. L. Jelovitz, Pratap Chandra Mazumdar, J. N. Mazumdar, Baridbaran Mukerjee, Tincowry Mukerjee, Akshya Kumar Datta, Hem Chandra Ray Chaudhuri, Amrita Lal Sircar, Prasanna Lal Kumar, Suresh Chandra Dutt, Giris Chandra Datta, Akshya Kumar Chatterjee, Jnanendra Lal Maitra, Kunja Lal Mallick, Babus Dinabandhu Mukerjee, Gopal Chandra Mitra, Srihari Ghosh, Barendra Chandra Ghatak, Rai Mohan Banerjee, Aswini Kumar Ghatak, and others. The two lady doctors who graced the hall by their presence were Drs. Kirkpatrick and Kingsley.

Dr. Hurronath Roy was unanimously voted to the chair, and Dr. Akshya Kumar Datta Secretary to the Hahnemann Society opened the proceedings with a short speech on the scientific aspect of Homœopathy. The following resolutions were then unanimously carried :

Resolutions.

1. That funds be collected to establish a Charitable Dispensary to perpetuate the memory of Dr. Mahendra Lal Sircar, in pursuance of a resolution, unanimously carried at a meeting of the Hahnemann Society, held on the 6th March, 1904.

Proposed by Dr. Chandra Sekhar Kali, L.M.S.
Seconded by Dr. W. Younan, M.B., C.M.

2. That Dr. Amrita Lal Sircar be appointed Treasurer to receive subscriptions for this purpose.

Proposed by Dr. Girish Chandra Datta, L.M.S.
Seconded by Dr. Tincowry Mukerji, L.M.S.

3. That bi-monthly meetings of the Hahnemann Society be held at convenient places in Calcutta to read papers and discuss the subjects in a friendly manner.

Proposed by Dr. M. L. Jelovitz, M.D.

Seconded by Dr. Suresh Chandra Datta, L.M.S.

4. That specialists be created among qualified practitioners of Homœopathy so as to enhance the progressive status of the system.

Proposed by Dr. Hem Chandra Ray Chaudhuri, L.M.S.

Seconded by Dr. Prasanna Lal Kumar, L.M.S.

5. That Dr. Prasanna Lal Kumar, L.M.S., be elected Assistant Secretary to the Hahnemann Society.

Proposed by Dr. Akshay Kumar Datta, L.M.S.

Seconded by Dr. Amrita Lal Sircar, L.M.S.

The chairman then addressed the meeting as follows :—

LADIES, COLLEAGUES, FRIENDS AND GENTLEMEN,

We have assembled here this afternoon to celebrate the one-hundred and fiftieth birthday ceremony of our Master, Samuel Hahnemann. He was a scholar and a man of extraordinary genius, capable of indefatigable industry, a kind, and a pure man, a savant, a profound thinker, a true physician, a man of gigantic intellect; who enunciated the first principles of scientific therapeutics, and who, in fact, conceived the idea of reforming medicine, and showed by example how it was to be done. But, Gentlemen, we deeply regret not to find in our midst, at this hour, the genial presence of Dr. Mahendra Lal Sircar, who was our recognised leader, and whose death is not only an irreparable loss to the rank and file of Homœopathy of this city, but to the Homœopathic world at large, and to the Indian Association for the Cultivation of Science in particular. He was a tower of strength to the Homœopathic fraternity of Calcutta, and his very name inspired awe and reverence in the minds of the members of the dominant school of medicine. He was a man of high intellectual culture and an ardent votary of science. It was his high cultures and the advanced and trained intellect which gave an impetus and crowned the edifice of his professional studies, and made him an accomplished and renowned physician. In his obituary notice, the "Indian Nation" had very justly remarked, that an imperfect knowledge of English is not an uncommon defect of our medical men; and it is a fatal defect. It stands in the way of an intelligent apprehension of medical books and medical lectures. Though born of humble parents, and suffered in his early life from the benumbing strokes of poverty, he by sheer dint of his intellect, close study, patience, perseverance, and love of truth rose to the highest pinnacle of success, and secured a leading position in the republic of letters and science, and in his own sphere as a leading physician. Like Dr. Syme, the great Edinburgh surgeon, he was hard and harsh, but within a rough exterior, he cherished in his heart of hearts a higher nature full of sympathy for all. He was affectionate in disposition, and loveable by nature; unswerving in his conviction of truth; wholly unselfish, and ever ready to oblige; hearty whole-souled in his greetings; sincere in his words and deeds; strong in character and firm of purpose; true to his friends; loyal to Homœopathy; a willing and able teacher to his younger and less skilled brethren. To know him was to love him. When meeting him in person, his clasp of the hand sent the life-blood bounding with quickened impulse through the arteries and warmed the heart. His lectures were always instructive in character, and he possessed a happy knack of delivering them, while all the time the kindliest smiles brightened his truly intellectual face. His departure completed the gap that separated those who did the sowing, and left us to do the reaping. His conversion to the new system of treatment alone secured a large following of qualified men in the rank and file of Homœopathy. He died full of honours, and with a European reputation. May his ashes rest in peace.

In noticing the dawn of Homœopathy, it should be observed, that the renowned Scotch professor, Cullen, once wrote a remarkable work on Materia Medica, that had gained much in reputation by having been rendered into German by Hahnemann. Perhaps the world does not owe much to South America, but it owes Cinchona to it, and we are grateful for the benefactions of the Jesuits for kindly bringing over the bark which has immortalised the name of the Jesuits in every marsh of the world. Cinchona has probably saved more lives than any other remedy in the pharmacopœia, and to it we owe the discovery of Homœopathy. Not the Homœopathy of Hippocrates, nor the Homœopathy of the writers of the sixteenth and seventeenth centuries, but the scientific Homœopathy that is based upon the proving of drugs on the healthy. Cullen in the introduction of his work gives an exhaustive history of Materia Medica as found in pharmacological works, and comes to the conclusion, that the writings on this subject are in great part "a collection of errors and falsehoods." We can readily imagine how consonant this was with the feelings of his translator at that period. Not content with this, he longed for a fixed unalterable law according to which drugs in general might be used. He was sure it existed somewhere close by, but where? He entered into the question of the trial of drugs on animals, and rightly remarked that this mode can have but a very limited application; our Allopathic friends still cling to this method which their own Cullen for the most part condemned above 100 years ago. It is said that Homœopathy existed long before Hahnemann. So it did, just as gravitation existed before Newton. The formula *similia similibus curantur* may be found in authors from Hippocrates onwards, from some of whom Hahnemann himself quotes in his Organon. It is therefore apparent, that those who quote triumphantly from these various authors to show that our Homœopathy was an old affair, and needed no Hahnemann to discover it, have merely skimmed the surface, and run away with an entirely false impression.

So you can perceive, Gentlemen, that every one look upon all these various notions of healing by similars as identical with the scientific inductive Homœopathy bequeathed to us by Hahnemann. The Homœopathic principle *similia similibus curantur* as a law of therapeutics is an immutable law of nature, and is altogether independent of any individual; but the Homœopathic system, or the doctrines and technicalities that have been agglomerated round that principle, bears the impress of the personality—the individuality of its author. In order to cure gently, quickly, certainly and enduringly, we must in every case of disease choose a remedy that is itself capable of producing a complaint like the one it is to cure. This Homœopathic way of healing has thus far been taught by no one, no body has carried it out in practice but our Master Samuel Hahnemann. He further goes on to argue that all real cures by remedies in every age have been according to the law of *similars*, although the physicians who prescribed the remedies were not aware of the fact.

And in a foot note he says, "For truth is co-eternal with the all-wise beneficent Godhead. Man may long leave it unnoticed until the time comes when, according to the decree of Providence, its bright sheen shall inevitably penetrate the fog and appear as the aurora of the morn and the dawn of day to shine brightly, for the weal of mankind for ever more." Before Hahnemann, homœopathy was an obscure, wandering and despised maiden thought awaiting marriage with a male mind; this thought became united with Hahnemann's mind and fecundity followed as a natural consequence for the weal of mankind.

The rule that is generally accepted in the medical art, to cure by means of oppositely acting remedies (*contraria contrariis*) is quite false, and the very reverse of the truth; on the contrary Dr. Stahl is convinced that diseases yield to and are cured by a remedy that can produce a like affection (*similia similibus*)—burns, by being brought near a fire, frost-bitten limbs by the application of snow and very cold water; inflammation and bruises by distilled spirits; and thus he was in the habit of treating a tendency to acidity of the stomach by a very small dose of sulphuric acid with the most happy results, in a case in which a number of absorbent powders had been used in vain. Homœopathy is certainly the mental property of Samuel Hahnemann, and of such of his disciples as have contributed to its development and propagation. Hahnemann is dead, it is true and cannot appear in the flesh to claim the product of his own genius; but he has followers who shall stand up and maintain that with all respect for professional unity, with all regard for professional brotherhood, though there cannot be any real unity in the profession so long as common honesty is banished from its portals, and greed and selfishness are not sacrificed at the altar of truth and goodness.

Throughout the profession, we mean the Allopathic profession—may God forgive them—the great name of Hahnemann is not duly respected, rather maligned, while at the same time his life's labor is being appropriated especially at the present day by the pilfering professors of the old school. And the sad consequence that follows is that the present generation of students are thus deliberately demoralized by being taught to sacrifice moral principle for mere expediency; to gain a cheap pseudo-success with tawdry tinsel instead of earning a really golden crown that comes only to honest truthful labor.

Our Allopathic friends, we regret to find, attribute the success of Homœopathic treatment to spontaneous recovery. This is directly opposed to what actually takes place in the field of practice; but admitting the statement to be true, Homœopathic treatment not interfering so much with nature as other methods do, must really be the best. In all cases which can recover spontaneously, strong dosing and active counter-irritation must rather hinder than help. The Homœopathist at least lets his patients get well, while another practitioner, if he does not do worse, at any rate prolongs his patient's illness, by interfering more than is necessary with nature's proceedings. It is well, that this should be understood by medical men as well as by patients, that whenever Homœopathy is a substitute for bad treatment, it must be the better of the two. In mental grasp and medical knowledge Hahnemann was vastly superior to even Hufeland "the Nestor of German medicine." In the fullness of time his doctrines and scheme which were scornfully rejected by the scribes and pharisees of the old school found favour with the public, and the number of his adherents, admirers and non-medical disciples increased from day to day and the day is not far distant when his principle will be universally acknowledged. He was the master of eight languages and left many works as the richest legacy to posterity.

When we take a review of his wonderful life, we are profoundly impressed with his greatness as a mere man; he taught Hebrew at the age of 13; he became a doctor of medicine at 24; he lived to be nearly 90, and labored all his time, certainly he was a hard worker for 80 years. He was indeed a great and almost a perfect man. As a physician he stands unrivalled, and exalted far above any the world has ever seen since the time of Divine Hippocrates. The lessons of his life are full of instructions. From his boyhood, from his youth, from his manhood we learn industry, perseverance, love of learning, devotion to science for the direct benefit of mankind, sterling irreproachable honour and probity, not having regard unto man merely but having a firm faith in God. We, his disciples—should always keep before our mind the standard of Hahnemann, and consecrate our lives to the sacred work of our profession—the relief of suffering humanity. What a wonderful man Hahnemann was! How eminent was his genius! How manifold his knowledge! How unswerving and persistent his will! How enthusiastic his faith! How glorious his end! Hipprocates, Galen, Hunter, Jenner, Harvey, Louis—each was great and noble; each an ornament to his profession; each in his way and time a gift of God to man. But not one of these had broader and deeper learning; not one had loftier genius; not one had higher obstacles in his pathway; not one achieved a work of equal value to his fellowmen. Let the ignorant sneer at, and deride his very pardonable errors. His most distinguished contemporaries were as fallible as he, and the day will never dawn when intelligent physicians shall cease to admire Hahnemann and to honour his memory.

Now gentlemen a few words to my colleagues, and I have done. This anniversary gives to all the members of our fraternity an opportunity to exchange thoughts, cherish good feelings and make suggestions for the advancement of the cause which we have so much at heart. It is in fact deeply to be deplored, that though we belong to the same school, and are the disciples of the same master, the immortal Hahnemann, we are not of one mind and opinion. We in truth do not understand and cannot appreciate the value of the old maxim, —"United we stand, divided we fall." We are a handful of practitioners, why should there be a division in our little camp? Why should we be separated from each other by discord, dissension and petty jealousies? We must sacrifice self interest at the altar of truth and allow concord and harmony to hold full sway over us, if we really mean to see success in the great work we have undertaken. The members of the dominant school are carefully watching our progress and trying to throw obstacles in our way, but if we are all united, and be of one mind and opinion, we can treat with little concern their onslaught, as we are fully conscious that our cause is just and true and shall in the end prevail and triumph. We must always remember and lay to heart the excellent advice given by Michael Faraday, and dedicate it with due grace to our professional brothers of the dominant school.

"The philosopher (and the physician) should be willing to listen to every suggestion but determined to judge for himself. He should not be biassed by appearances, have no favourite hypothesis, be of no school, and in doctrine have no master. He shall not be a respecter of persons, but of things. Truth should be his primary object. If to these qualities be added industry, he may indeed hope to walk within the veil of the temple of Nature."

EDITOR'S NOTES.

The Mechanism of Deglutition.

Dr. Julius Schreiber, the Director of the Universitats-Poliklinik at Konigsberg, has recently carried out some exact and valuable observations on the mechanism of deglutition. He recorded the pharyngeal part of the swallowing movement by means of a tambour placed within the pharynx, the laryngeal movements by a tambour affixed outside the larynx, and the passage of the bolus down the gullet by means of a string tied by one end to the bolus, the other end passing over a pulley to a writing style. The observations were mostly carried out on a neurotic patient, habituated to the passage of the oesophageal sound. From his observations, which are given in the form of curves, Dr. Schreiber establishes the fact that all ingesta, fluid or soft boluses, are expressed by the combined action of the muscles of deglutition out of the closed and airtight cavity of the mouth—or auricle of deglutition, if we compare the mechanism with that of the heart—into the pharynx—or ventricle of deglutition—whence by the contraction of the sphincters it was forced into the beginning of the gullet. Down this the bolus is carried by a peristalsis which varies in rate in the cervical and thoracic parts respectively, to the epicardia, which it reaches in about five seconds after the beginning of deglutition. The last four or five centimetres of the gullet act as a sphincter, and after a pause of 0.3 to 0 5 sec., press the bolus on into the stomach. This last part of the act occupies two to four seconds, so that the whole process of deglutition takes seven to nine seconds in its execution, a period which agrees with that at which an auscultatory sound can be heard in the stomach after the swallowing of fluid (Meltzer). Dr. Schreiber controverts the conclusion of Kronecker and Meltzer that fluid can be shot down the gullet by the piston-like action of the mylohyoid muscle, and points out how this erroneous conclusion has arisen from the nature of the method of observation employed by these authors.—*Brit Med. Journ.* March 25, 1905.

The Consumption of Spirits in Belgium.

The Foreign Office report on the finances of Belgium furnishes some instructive figures which show graphically the results achieved by recent legislation in reducing the consumption of spirits in that country. Not long since the steady increase in the amount of spirits drunk offered a serious problem for the consideration of statesmen. In 1895 some 677,225,000 litres of alcohol—apart from that used for manufactures—were thus consumed, representing over 10½ litres a head of the entire population. In 1898 an Alcohol Law was passed, which raised the duty from 64 fr. to 100 fr. per hectolitre. This, however, only reduced the annual consumption by a little over 1 litre a head. In 1903 the duty was increased to 150 fr. per hectolitre. It now appears, from the statement of the Minister of Finance, that this measure has had the effect of reducing the consumption to 5.37 litres a head in the course of the first year of its operation. It is pointed out, however, that these figures may be somewhat misleading, as the dealers would be naturally disinclined to replenish their stock at the higher rate of duty, and have therefore probably been trading on the abundant stock they had in hand, in which case the consumption for the last two years has most likely been underestimated, as it is calculated from the amount of duty paid. Count Smet de Nayer accordingly anticipates that, now that the temporary effects of the new law have come to an end, the rate of consumption will be found to be about 7 litres a head for the future, and this he regards as satisfactory progress, although meaning a very considerable financial loss—placed at over £200,000 in the estimates for the year—to the revenue. The chief object of the law, as His Excellency pointed out at the time, was to check the excessive drinking of spirits, which threatened serious deterioration both to the health and morals of the people, and the loss to revenue will be more than compensated by the gain to health and industry resulting from the increase in temperance. Though aided by private enterprise and benevolent societies, it is claimed that the satisfactory result obtained is due almost entirely to legislation. The hectolitre contains 22 gal.; the duty on spirits in the United Kingdom is 11s. a proof gallon.—*Brit. Med. Journ.*, March 11, 1905.

A Case Showing Spirilla in Blood Simulating Malarial Fever.

This case seems to be of interest, as in many particulars it differs from ordinary relapsing fever, and had it not been for the accidental discovery of spirilla whilst searching for the malarial parasite it would have been considered a case of the latter disease, and in this respect is somewhat analogous to the case reported by Sir Patrick Manson in the British Medical Journal of March 5th, 1904. The following are the notes on the case:

Sowar, J. K., aged 24, service four years, 23rd Cavalry, admitted March 7th, 1904. A strong, well nourished man, previous health good. No prodromal symptoms to speak of.

Condition on Admission.—Temperature 104.0° F., pulse 129, Respirations 31; complains of headache and usual febrile symptoms. Spleen enlarged and rather soft, reaching nearly to umbilicus. Diagnosed as "malarial fever with enlargement of spleen." Temperature remained high (101° to 103° F.) until March 10th (fourth day), when it fell by crisis, all his symptoms rapidly abating, and he felt quite fit by March 16th. On March 19th (thirteenth day) his temperature rose to over 103.0°F., with the usual febrile symptoms, but nothing out of the common. It remained between 101° and 103°F. till March 21st (fifteenth day), when it fell by crisis to normal, with rapid amelioration of all symptoms. From this date onwards he made an uninterrupted recovery, his spleen getting steadily smaller. It is now at date of writing (April 12th) only just palpable.

On examination for malaria no parasites were seen in his blood, but spirilla were discovered in small numbers They seem longer than the spirillum obermeyeri and there are very few, no field containing more than two, and they take some time to find at all. He was not a broken-down and badly-nourished man, in fact quite the reverse, and he has not been away from the station this year. The regimental lines are new and commodious and well situated and the general health of the regiment is very good. No other cases have, as far as is known, occurred either in this regiment or in the rest of the station, which is a very healthy one.

The case was exactly like many cases one sees in the Punjab which are diagnosed as malarial, as this one was until the spirilla were accidentally discovered.—*Brit. Med. Journ.*, March 11, 1905.

Unity of the Tubercle Bacillus.

Even those who hold most tenaciously to Koch's contention in favour of the duality of human and bovine tuberculosis must admit that the evidence which he adduced was almost wholly of a negative character and the results of subsequent researches have been such as to leave no reasonable doubt as to the essential identity beneath superficial and accidental differences of the bacilli of tuberculosis, avian as well as mammalian. This has recently been demonstrated by the almost exhaustive investigations reported in a "Habilitation Schrift" by Dr. Paul H. Romer of Marburg, embracing every possible combination and permutation of factors save only inoculation of the human subject. He experimented with no fewer than 52 strains derived from man, cattle, and rodents, and two from birds ; these he passed in varying sequence through cows, sheep, goats, horses, guinea-pigs, rabbits, white mice, and fowls, cultivating them in glycerine serum, glycerine agar, potato agar, potato glycerine, and glycerine broth, diluting with physiological salt solution in regulated do sage for purposes of inoculation. The general results of his experiments, which with tables and plates fill over 100 pages, were that all animals were susceptible to infection by each and every strain, though some methods of culture and the passage through particular species of animals enhanced, and others enfeebled, the virulence of certain strains, and that consequently smaller or larger doses might be required. Thus, white mice, said by many observers to be immune, succumbed to long treatment with large doses of No. 1, a tubercle bacillus of human origin that had been cultivated for seven years and passed through a long succession of guinea-pigs. The differences in the appearance of the several cultures were determined by the media and the methods of cultivation rather than by the original source, some forming moist, viscid, and slimy deposits and others a dry, wrinkled felt, while morphologically some human, bovine, and ovine strains were quite indistinguishable and animals infected with one—e.g., ovine—tubercle culture reacted to human, bovine, and other tuberculins as well as to ovine, and *vice versa* each tuberculin caused a reaction whatever the source of the tuberculous disease. Generally a strain more virulent than another to one animal was found to be so to all others under all conditions. The order of susceptibility was the guinea-pig, the rabbit, the horse, the goat, the sheep, and the ox, guinea-pigs being the most, and oxen, contrary to general belief, being the least, susceptible. The avian tubercle was obtained from two fowls which had fed on, and probably, had been infected from the viscera of a cow which had died from tuberculosis. Unlike the mammalian tubercles it was most virulent to cattle and least so to guinea-pigs, unless previously passed through some other mammal. Its immediate action on the guinea-pig was shown rather in the setting up of a toxic pneumonia than of the usual tuberculous process, but the most remarkable feature of this strain was that whether introduced by intravenous or intramuscular injection it failed to infect other fowls, although it was very virulent to rabbits. Intentional experiments on man are, of course, inadmissible, though from time to time we hear of undesigned and accidental inoculations with bovine tubercle, an instance of which was recently reported by E. Schindler of Prague.—*Lancet*, March 11, 1905.

Sanitary Salutation.

Kissing was among the ancients largely a mode of salutation akin to the rubbing of noses which is the formal greeting of some savage tribes. The practice was formerly much more common in this country than it is in our more fastidious day; Erasmus, indeed, complains of the indiscriminate kissing on the part of his English male friends to which he had to submit. Kissing has been denounced by austere sanitarians as a sin against the laws of hygiene; on the other hand, it has found defenders who see in the practice a means of supplying dyspeptics with beneficent microbes that will act as aids to digestion. The suggestion, which has lately been revived, is by no means new; but unluckily science cannot yet tell us how the good bacilli are to be separated from the bad as they pass into the mouth of the recipient. On the whole, it must be said that from the merely sanitary point of view the dangers of kissing outweigh its possible therapeutic benefits. A formidable list of the diseases which may be transmitted in this way is given by Dr. Ch. Fere in a paper which appeared in the

Revue de Medecine some time ago. The list includes, besides syphilis and tuberculosis, diphtheria, exanthematous fevers, and various forms of skin eruption. It is obvious, therefore, that the social custom which sanctions the kissing of young children by family friends, and even casual acquaintances, is extremely reprehensible. Even the perfunctory kiss of feminine friendship has its dangers. In France we believe the embrace between men, which used to serve the purpose of handshaking in our colder clime, has largely died out during the last few years. Now the kissing of hands has come under the ban of hygiene. Professor Duhrssen gives a vivid account of the dangers of the practice: "M. X. has influenza. He goes out, for he is invited to dine with M. Y. He arrives first, and kisses the hand of Madame Y. The other guests do the like; one after the other they gather from the hand of Madame Y. the bacilli left there by M. X. to convey them later to the hands of the other ladies. The ladies during dinner carry these bacilli to their mouths without its being necessary to suppose that they eat with their fingers; it is enough that the back of the hand should have touched the napkin. After dinner, the children—ornaments of the hearth—make their appearance in the drawing-room; being well brought up they kiss the ladies' hands, and there catch such bacilli as the ladies have not kept for their personal use. In this way is brought about an epidemic of influenza." Tuberculosis may, according to the same authority, be spread in the same way. In view of this teaching may we with all respect congratulate the present Pope on having abolished the kissing of his slipper by the faithful? Even handshaking is condemned by some as promoting the exchange of undesirable microbes which, in spite of the most careful ablutions, have their dwelling place on the hands. The most dangerous people to shake hands with, we are told, are medical practitioners, nurses, hairdressers, butchers, sausage makers, tripe merchants, tanners, and leather dressers. On the other hand, it is comparatively safe to shake hands with workers in metals, the reason given being that "the metal sets up an oxidation, which acts as an antiseptic." It will be passing strange if science, by condemning our accepted modes of salutation, should force us to seek a sanitary refuge in the tapping of the epigastrium, or striking the arm, which are fashionable among certain uncivilized peoples.—*Brit. Med. Jurn.*, March 11, 1905.

Plague in India.

The serious news which our Indian correspondent sends regarding the mortality from plague in that country indicates that no progress has been made in the control of the disease. On the contrary, the situation in India is becoming worse year by year and not only threatens to be, but is already, one of the greatest catastrophes of modern times. In January of this year over 100,000 deaths were recorded from plague in India. In February there were another 100,000, and 34,000 and 35,000 deaths are the numbers which have been reported during the past two weeks. Thus a greater disaster has occurred to our Indian population since the commencement of 1905 than has happened to the Russian army in Manchuria. Have those responsible for the welfare of our Indian empire fully realised the gravity of the situation either from its humane or political aspects? As regards the humane side, it is obvious that active measures proportionate to the greatness of the issues at stake require to be taken. Are these being organised and carried out? We doubt if the reply that can be given is satisfactory. It is true that an inquiry is to be undertaken by the Lister Institute of Preventive Medicine, the governing body of which has been in communication with the India Office and that the Institute, in conjunction with the Royal Society, has nominated a small advisory committee to be intrusted with the duty of drawing up a plan of campaign. This is good so far as it goes but surely the urgency of the situation has not been recognised. The proposal of the Lister Institute was made last September, the work has not yet commenced, and it is possible that nothing much will be done till next September. In the meantime the appalling death-rate continues. The advisory committee includes Dr. C. J. Martin, F.R.S., director of the Lister Institute, and Colonel D. Bruce, R.A.M.C., F.R.S., and is to be reinforced by a nominee of the India Office, two workers in India, and two assistant bacteriologists, and there is certainly room upon such a committee for one or two more persons possessing first-hand knowledge of the practical problems involved in the checking of an epidemic. Dr. Martin, Colonel Bruce, and Captain G. Lamb, I.M.S., who will cooperate with the committee in India, are obviously competent to do their share in grappling with the situation, and so is the gentleman whose name has been mentioned as the representative of the India Office, but if the scientific inquiry on the spot is to be delegated, as was once we think the design of the Lister Institute, to two assistant bacteriologists, then the confidence of the medical profession in the work of the Advisory Committee will require some support. The method in which this matter is being handled must occasion concern to those who are anxious that the inquiry should be started in a proper manner and should achieve practical results. The epidemic of plague in India is more than a passing incident calling for some palliative measure. It is a catastrophe which if not dealt with by broad and adequate measures having for their main object the prevention of the disease will create a state of affairs in the Empire which may become a serious political danger. No Government can afford to have its subjects dying from one disease, presumably a preventable disease, at the rate which is occurring in India, for ultimately such destruction produces its moral effects. When the rulers appear to hold the subjects' lives cheaply a loosening of the bonds may occur between the governed and those who govern. This has occurred in the times of pestilence before now and it may occur again.—*Lancet*, March 25, 1905.

Diseases Due to Preserved Food.

Amongst the recently-published scientific records of the Swedish Antarctic Expedition (1901-3) are two articles by Dr. Erik Ekelof, the medical member of the expedition. One of these, which has already been translated into English, deals with the general medical history of the explorers, and contains some interesting observations upon diet. With regard to the causation of scurvy the author admits that this disease is due to some defect in the nature of the food supply, but does not accept the popular theory that this defect consists essentially in a lack of vegetable food. Following Professor Torup of Christiania, he considers that scurvy arises not from the absence in the diet of certain elements existing in common fresh food and indispensable for the body, but from the ingestion of "some non-organized matter, foreign to, and dangerous for the human organism." In support of this hypothesis he quotes instances both from the expedition in which he participated and from the literature of previous polar explorations, which go to show that men may subsist for many months upon fresh meat, obtained by hunting, and with an entire absence of vegetables, without any sign of scurvy breaking out amongst them. In the second article Dr. Ekelof discusses more fully the etiology of the disease, and endeavours to throw some light on this obscure problem by a careful study, from the medical standpoint, of the literature of polar exploration. Amongst his arguments against the theory that absence of vegetable food causes scurvy he quotes the experience of Nansen and Johannsen, who lived in Franz-Joseph's Land for nine months during the winter of 1895-96 entirely on fresh animal food, enjoyed excellent health, and gained considerably in weight. He also reminds us of the observation of Greely, who led the American North Polar Expedition of 1881-4, that among many tribes of Esquimaux scurvy is unknown, although they eat neither bread nor vegetables. On the other hand, many instances are quoted in which scurvy broke out amongst expeditions which were well equipped with vegetable food. The one factor which Dr. Ekelof finds invariably associated with outbreaks of scurvy is the consumption of preserved animal food. Such food, he holds, undergoes in course of prolonged keeping autolytic changes of a fermentative or analogous nature, in consequence of which toxic products are formed; and it is the ingestion of these substances which gives rise to scurvy. These deleterious bodies are not due to putrefactive or bacterial decomposition, nor do they reveal themselves by any change obvious to naked-eye inspection in the food which contains them. It cannot be said that Dr. Ekelof has fully substantiated his rather vague theory, but his hypothesis is suggestive, advocated in an ingenious and interesting manner, and well worth considering. At the close of his article he endeavours to explain the etiology of another obscure disease—beri-beri—on similar grounds. Beri-beri, in his opinion, is also an intoxication not due to bacterial infection. An important factor in its causation is the use of preserved animal food, which contains a toxic nucleus chemically identical with that productive of scurvy, but modified in the intestinal canal by the presence of large quantities of starchy material. We congratulate Dr. Ekelof upon his ingenuity, and hope that in the course of further investigations he may be able to establish his opinions upon a more substantially scientific basis.—*Brit. Med. Journ.*, March 25, 1905.

CLINICAL RECORD.

Indian.

A CASE OF DIARRHŒA.

By Dr. Hem Chandra Ray Chaudhuri. L.M.S.

Babu——————————aged 19, living in Sankaritola East Lane, was suffering from diarrhœa for the last five days, commencing on the 29th December last. I saw him on the 3rd January, 1905. The temperature was normal. He had rumbling of the abdomen before stool and also at other times. The attack is probably due to taking rather large quantity of fish than he was used to. Puls. 6 dec. a drop a dose after each stool.

4th. January. He had eight stools yesterday and one this morning. The stools are yellow liquid and comes out with great force accompanied with wind. Croton tig. 3 dec. a drop a dose after each stool. Rice and fish soup for diet.

5th. He had two stools yesterday, and none this morning, Croton. tig. 3 dec., continued. Rice and fish soup for diet.

6th. He was doing well. No more stools.

Remarks.

The stools which Croton tig. is successful to arrest are those which have yellow liquid character and expelled with force. In most of the cases, the ejection of the wind with the stool forms another feature. The other peculiarity is that this sort of diarrhoea, with the expulsion of the liquid yellow dejecta can be stopped by the administration of solid food as rice and fresh arrow-root biscuits. The watery food as barley or arrowroot water does not mitigate the severity.

Foreign.

CASES OF APPENDICITIS.

By Dr. Clarke.

CASE I.

Master E. S., aged 10, fair, had been ill for some days when I saw him first on September 7, 1887. The particular illness for which I was summoned began, two days before, with pain low down in the abdomen, and frequent desire to pass water. The temperature had been up to 103. The boy was liable to "bilious attacks," of which he had one once a year. Previous to the onset of the pains, he had had vomiting and diarrhœa, which were taken for one of his ordinary bilious attacks.

I found him with a temperature of 102.2, pulse 120, abdomen tender all over, especially tender in right groin. Legs drawn up, the least movement makes him wince. Hot fomentations relieve. Tongue white; rather thirsty. Bowels not moved for two days; urine loaded with lithates, contains some phosphates, no albumen. Liquid diet was prescribed, and *Bryonia* and *Merc. cor.* given every hour alternately. Hot fomentations to the body were ordered.

Sept. 8*th.*—Temperature 100·2. Pulse 108. Slept very well. Is drowsy during the day. Tongue whitish; no sickness: likes barley-water best. Bowels not moved, though there has been some effort. Passes flatus. Body still tender, tenderness being greatest in right groin. Pain is always present, but is not acute unless he moves. Lies with feet drawn up, but there is no anxiety on his face; his expression is brighter. *Repeat.*

Sept. 9*th.*—Better generally. Temperature 99·6. Pulse 96. Slept well. Still complains of much pain and tenderness. Still retches if he takes anything except beef tea. *Has frequent desire for stool.* This gave him much pain, and he passed one or two small, hard lumps. *Nux vomica* was now given instead of *Bryonia, Merc. cor.* 6 being continued in alternation. The symptoms italicised indicated *Nux.*

Sept. 10*th.*—Good night. Had a good stool, without pain or difficulty, the previous night. Temp. 98·8. Pulse 96. Tenderness has left the whole abdomen, except the right iliac region, and there it is less than it was. Tongue rather dirty. Still objects to milk, but has a desire for a bit of tongue. *Repeat* medicines. Omit fomentations.

Sept. 11*th.*—Temp. 98·4. Pulse 84. Only a little tenderness left in right iliac region. Can sit up in bed a little. Tongue clean; appetite better; no sickness; bowels not moved. Slept well. *Repeat.*

Sept. 12*th.*—Temp. 101·6. Pulse 96. This rise of temperature was apparently occasioned by a nervous upset; otherwise he was about the same. There was still right iliac tenderness and some dulness to percussion in that region. *Recipe* · *Opium* 3, *Merc. sol.* 6 every alternate two hours.

Sept. 13*th.*—Temp. 98·4. Pulse 68. Slept well; appetite returning. Tongue rather dirty; breath offensive; bowels not moved. Had profuse perspiration the previous afternoon. *Repeat.*

Sept. 15*th.*—Up and dressed. Doing well. No pain left. Tongue clean. Bowels open. Appetite good. *Recipe*: *China* 1x and *Merc. sol.* 6 every two hours in alternation.

Sept. 19*th.*—Apparently quite as well as usual. Has no bleeding from the gums, though the upper gums look tender. *Repeat.*

This was the last visit I paid to the patient. He was a very delicate boy, his mother having been consumptive for years before his birth and having died a few years after it. The boy's finger-nails were like paper. He was very susceptible to colds. Naturally he was very fond of meat.

CASE II.

I will now give a more recent case, which occurred in a boy of fifteen—H. R.

When I saw him on May 2, 1903, he had been ill for a week. The first two days he had violent headache with aversion to light; he had vomited all night the night before I saw him. Five and half years before he had had an attack of appendicitis. Tongue dirty; bowels open; tenderness in right iliac region. Lies with knees drawn up. Temp. 100. *Recipe: Lachesis* 30 every two hours.

May 4th.—Pain much less. Slept well. Temp. 99·4, Pulse 64, irregular. He felt his heart give two big beats. Has a cough which hurts the abdomen. Lies with knees up. Tongue dirty; breath very offensive last night. Not very thirsty. Cæcal region still tender. *Repeat.*

May 6th.—Very much better. Can move well and bear pressure well. Bowels acting regularly without trouble. Tongue clearer. *Repeat.*

From this time on the recovery was rapid and uneventful.

This patient had in a general way an enormous appetite, and ate his food rapidly. It was apparently from indigestible and undigested food that this attack arose. It was difficult to keep his appetite within bounds during the case. *Lachesis* was the only remedy required throughout. It was indicated by the pain in the right iliac region, by the excessive tenderness. Some of the actual symptoms caused by *Lachesis* are: "Tearing and cutting pains in right side of abdomen." "Painful distension; flatulence; can bear no pressure; surface nerves sensitive." The vomiting, irregular appetite, and feverish condition also indicated this remedy.

These are examples of how homeopathy can cut short acute attacks of appendicitis when inflammation has been actually developed. I need scarcely say that in all cases careful diet is a matter of the first importance. From the onset of pain with fever all solid diet should be stopped. Milk also should be taken with care, and never undiluted. Beef tea, meat-essences, barley-water, thin gruel, and water if the patient likes it. Hot fomentations are useful in many cases, and lime-water compresses are also sometimes of great help in allaying inflammatory action. But these are only adjuncts to the action of remedies which are the most potent means the homeopath has for rectifying the trouble. In the first case, *Bryonia, Mercurius cor.* and *Mercurius solubilis* were the main remedies given; in the second *Lachesis* alone was required. Other remedies which are often in request are the following:—

Iris tenax and *Iris versicolor.* Both these remedies are closely related by their symptoms to an attack of appendicitis. The former, which was proved by Dr. George Wigg, set up the following symptoms: "Cutting in abdomen, more severe right than left;" "Fearful pain in ileo-cæcal region;" "Pressure in ileo-cæcal region causes deathly sensation at stomach-pit;" "For fourteen days there was a painful spot over ileo-cæcal region, as if an ulcer, the size of a shilling, might be inside;" "Hot applications relieve the pain in the bowels."

I shall give later on examples of the action of *Iris tenax* in curing cases of appendix troubles. Both Irises cause gastric disturbances, and diarrhœa or constipation like those which accompany the trouble, so that these two remedies may be relied on in a large proportion of cases.

Arsenicum is another remedy often called for. It has a specific action in the ileo-cæcal region and it produces inflammation of a low type. The cases which call for this remedy will generally have some of the characteristic symptoms to guide—anxiety, red tongue and thirst for little and often, restlessness, and debility.

Apis is very like the serpent venom *Lachesis* in its action. It is related to the right groin; it has also excessive tenderness like *Lachesis*. Swelling, burning pains, and stinging pains. A sensation as if something would break when straining at stool—these symptoms would be sufficient to single out *Apis* in preference to *Lachesis*, if present in a case.

Bryonia will be called for when the symptoms are characterised by *aggravation from the least movement.*

Rhus, on the other hand, will be needed when the patient cannot endure to be still, but must be constantly shifting his position.

These are a few of the remedies most commonly needed, but homeopathy is by no means limited to these in its choice. In any case some strong characteristic symptom may most point to any remedy in the materia medica.

THREATENED APPENDICITIS.

I will now give two cases to show what homœopathy can do in the way of *preventing* the development of appendicitis when threatened.

Many cases of appendicitis which call for sudden surgical aid might never have come to that at all if the patients had been properly treated by homeopathy from the outset.

CASE III.

Miss E. G., about 30, of very gouty forbears, whom I had treated some time before for chronic headaches, came to me on July 19, 1904, complaining of a pain in the abdomen which she had had for a fortnight. The pain came in spasms. The bowels were upset, and she had diarrhea. The pain was in the ileo-cæcal region, which was tender to pressure (but it was not *superficial* tenderness—*i.e.*, tenderness to slight touch which distinguishes *Lachesis*, *Apis*, and some other remedies). *Recipe: Iris tenax* 30, twenty-four powders, one four times a day. The patient was instructed to avoid all fatigue or exertion and to be extremely careful in her diet.

July 27th.—Much less tenderness. Bowels rather confined. *Repeat.*

July 29th.—On 26th had a very bad headache, with vomiting, the vomit being bright green at first, then very yellow. "*The pain in the side is certainly better.*" On August 4th she received *Arsen.* 30. On August 25th she reported herself as much better. On September 8th by deep pressure a very little tenderness was elicited. In October she went to Biarritz. I gradually relaxed restrictions in exercise and the trouble did not recur. But for the care taken and the specific homeopathic treatment this case would have gone on to a fully-developed case of appendicitis. As it was, it was arrested at the stage of irritation.

CASE IV.

Miss C., 28, came to me on December 21, 1903, complaining of pain in right iliac region. She had felt it the previous October. About two years before she had been re-vaccinated and had had a bad arm as a result. She suffered from facial neuralgia, occasional bad headaches, was depressed at times and tearful, and was inclined to be hysterical at the monthly periods. She suffered much from backache, and the back was tender to touch on the right side of the lumbar spine. I found the spleen large and a good deal of tenderness in the ileo-cæcal region. This patient was engaged in business and I allowed her to continue her work during the treatment.

Believing that there was a vaccinal element in this case, I first gave a course of *Thuja* 30, with great improvement general and local. This was followed by *Malandrinum* 200. The appendix pain became of less consequence than the general symptoms, and some time later I advised her to take a holiday, which she did—having had no holiday for some years previously. After this she returned much better; but the old neuralgic symptoms did not depart, and pain in the right side came at times. The pain was always worse after the monthly period. There was also constipation, and the pain in the appendix region was worse before the bowels acted. The superficial tenderness was great.

On June 13, 1904, I prescribed *Apis* 100, three doses to go over the month. This was followed by very great improvement both in local symptoms and in the constipation. On August 5th she writes: "It is delightful to be able to forget that I have an appendix." Since then there has been no more real trouble.

I am inclined to think that in this case there was an ovarian involvement. This not unfrequently occurs in appendicitis in women; and *Apis* is a remedy which affects the right ovary as well as the neighbouring organs. *Apis* is also a remedy for the effects of vaccination. In reference to the suspected vaccinal element in this case, I have met with a number of cases in which swelling of the spleen and pain in the ileo-cæcal region have followed sometimes immediately after and sometimes months after vaccination. In these cases the remedies which are antidotal to vaccinosis are absolutely necessary to relieve and cure the patients. Influenza is another fruitful cause of appendicitis.

CASE V.

Miss V. came to me on March 24, 1900, complaining of pain in the right side, which came on a short time before whilst she was in Paris. The first symptom was depression and irritability. This was followed by severe pain which began in the epigastrium, passed down to the hypogastrium, and then to the right iliac region, which was tender. The pain was severe for two hours, then gradually diminished,* and was gone by next morning, but has since recurred. The stool in the morning was natural, in the evening softer, and the pain was worse after it. Pulse 84. Liver and spleen both slightly enlarged. Tenderness in right iliac region, with a raw, bruised feeling. Pain shoots from right to left. *Recipe : Iris v.* 12, half an hour before meals and at bedtime.

June 19*th.*—Has been free from pain for the last week or two, when there have been reminders of the pain. *Recipe : Iris v.* 30.

July 28*th.*—Only felt the pain twice since. *Recipe : Iris tenax* 12, Discs ʒii, one four times a day.

Sept. 6*th.*—Very much better. No pain in the side at all. *Recipe : Iris tenax* 12, 21 powders, two drops in each, one at bedtime.

After this there was no more trouble in the side, though many of her friends were urging the patient to "have an operation and get rid of it."

From these cases it will be seen that to the homœopathic patient and the homœopathic physician "appendicitis" is not a word to occasion panic.

I may be asked if I never advise operation. Under certain circumstances I certainly should. For instance, I had cured a young lady of a very sharp attack of appendicitis, when, some twelve months later, she sat for a long time with wet boots on, after having been caught in a downpour of rain. This brought on another attack, which was more tedious to get rid of. As she had to earn her living and could not command the necessary conditions for cure ; and as she could not afford to run the risk of further attacks whenever she caught a severe chill, I advised her to see Mr. Dudley Wright and take his advice about an operation. This she did, the appendix was removed, and the result of the operation has been eminently satisfactory. Again, if a case has gone on to suppuration and the formation of an abscess, I should certainly advise the evacuation of the pus as soon as this could be done. But at the same time I should give the patient the benefit of homœopathic treatment both during the period of convalescence and afterwards.

Appendicitis is often caused by chronic blood disease—gout among the number—and operation or no operation, the patient cannot be considered cured until a constitutional change for the better has been brought about. Constitutional homœopathic treatment is the best means of securing this.—*Homœopathic World.* March 1, 1905.

A Case of Cancer.

By Eli G. Jones, M.D.

On February 2d, 1904, a lady came to my office; she walked with a cane and was heavily veiled. As she sat down in the chair it seemed to me that she would hardly have strength enough to rise again. She lived just outside of the city and was over fifty years of age. Upon raising her veil to let me examine her face, "it was a sight to see." An epithelial cancer starting from the corner of the eye, extending over the nose, involving the upper and lower eyelids, then extending down the face about two inches below the lower eyelid. The eye itself had begun to be affected by the cancerous humor and it would, in a short time, destroy the eye-sight. She had been *operated on four times* by the surgeons in this city; they also tried X-ray, then gave the case up as *incurable.* In addition to the cancer she had suffered with a lameness caused by fracture of the hip and injury to the back in a trolley accident five years ago. This condition of things made it necessary for her to go with a cane—and part of the time with a crutch. I told her that her case was *curable,* that I could not only cure her cancer but improve her general health and help her lameness. The location of the cancer in the corner of the eye made it absolutely necessary that the local application should be of such a nature as not to cause *any pain* or *inflammation.* All the so-called "Cancer Plasters" could not be used in this case for the reason just given. She had confidence in my judgment, for she knew I had cured a sister of hers eighteen years ago of cancer of the breast without causing her any pain or making any sore—and the cancer had never troubled her since that time. I began the treatment of this lady by applying "*Cerate Phytolacca folium*" (made by Boericke & Tafel, the juice of the fresh leaves mixed with vaseline) on soft linen cloth to cover all the diseased surface of the face. This application to be made night and morning. Every time she changed the salve to bathe the surface round the eye with *warm* water and *Extract Wischhazel,* equal parts; take a little time about it and continue the bathing for several minutes at a time. Internally, I gave her *Calcarea Phos.* 3x, five tablets, three times a day, and *Silicea* 12x, five tablets, three times a day, the *Calcarea Phos.* to be taken before meals and *Silicea* after meals. In a week's time there was some improvement in the case; she never suffered *any pain* from the treatment and the *Phytolacca folium* cerate did not inflame the eye. She slept good every night *without* any hypnotic or nervine, her appetite improved and she began to feel some stronger. The above plan of treatment was continued without any change for three months. At the end of that time she could walk *without a cane or crutch*, the cancer had entirely *disappeared* from her face, the color of the skin was natural and healthy, like the rest of the face. At the present date, November 30th, I am satisfied that she is cured of the cancer. It is considered almost a miracle by the many people who saw her as she was before beginning my treatment. The great secret of success in the treatment of cancer is in being able to adapt your treatment to each particular form of cancer you happen to meet. In my thirty-five years' practice I have treated all the different forms of this disease, both external and internal, and I have never found any two cases just alike. That is the reason why so many doctors fail who try to cure all forms of cancer with a "plaster;" it is a *pure, unadulterated form of quackery*. In 1869 I started to test cancer with the idea that it was merely the *local* manifestations of a blood disease. In all the years since then and in treating cases of cancer from twenty-five States of the Union I have never seen any reason to change my opinion. The fact that a large percentage of the cases that come under my treatment have been operated on by the knife or caustic without any treatment for the blood, proves to me that a *purely local* treatment for cancer will never cure it.

I have never seen a case of *genuine cancer* in any form *permanently cured* by a surgical operation. The profession will *never* cure cancer while they continue to treat it as a *local* disease. Acting on this theory, they applied the X-ray to kill the cancer, but I have yet to see a single case of cancer cured with it. Since January, 1904, I have over forty cases of cancer where the X-ray had been tried and proved a *failure*. The treatment of cancer is a *specialty*, the same as the "Eye and Ear." No physician should attempt such work unless he has a taste for it and made a special study of it, and will make the treatment of cancer the *business* of his life. Not one doctor, I presume, in one hundred cares to work over "old sores," and the smell of a cancer when it gets "ripe" is not pleasing to most men.—*Homœopathic Recorder*, February 15, 1905.

Gleanings from Contemporary Literature.

THE ACTION AND THERAPEUTICS OF STRYCHNINE.

BY THOMAS D. NICHOLSON, M.D., C.M. EDIN.
Physician to the Clifton Homœopathic Dispensary.

It almost needs an apology to bring before the Society such a well-known drug as strychnine, but because it has been neglected in text-books on homœopathic materia medica, and there has not been a discussion (so I have been informed) in this Society for a long time, I venture to hope that a mutual exchange of views will help some of us in our practice.

The earlier materia medicas did not include strychnine separately from nux vomica, and the later ones devote to it less attention than it deserves. There are six pages of provings in the "Cyclopædia of Drug Pathogenesy," and of course numerous cases of poisoning.

The provings were made with the liquor strychniæ of the British Pharmacopœia (4 grs. to the ounce), and seem to be of a rather heroic character, the first prover taking nearly an ounce and a half in fifteen days.

The symptoms produced were distinct, and may be summarised thus First prover had for several days stiffness and trembling; then developed, on twenty-third day, dizziness, humming in ears, "general coldness, especially in sacral region, which feels as if it were iced." Second prover on third day had severe, sharp pains in shoulder-joints and muscles of chest, a cold chill down entire length of spine, and afterwards felt deathly cold, giddiness and nausea, great weariness, and other dull pains and spasms when falling asleep. Same prover on another occasion, two days after taking thirty drops, had "violent bursting headache, burning heat in eyes, contracted feeling in muscles of neck, icy coldness down head and spine, feverish thirst, nausea, intense aching of feet when walking." A week later the same dose produced marked tremor and giddiness, sudden cold, perspiration, and icy coldness over body, and, later, intense burning of ears, nose and eyes, depression, stupor, and at night restlessness, with profuse perspiration.

Other symptoms are common to nux vomica and strychnine. Of the poisoning cases I need only refer to those where the doses were moderate, not fatal, *e. g.*, "Mr. B., afflicted with chronic tic douloureux in paroxysms of excessive violence, and accustomed to take morphia, took by mistake 3½ grs. of strychnine powder. When walking along the street he complained of numbness in back and legs, followed by dragging of muscles of the legs, so that he suddenly overbalanced and fell heavily backwards, but there was no spasm. After a second dose of the powder he was seized with a violent tetanic spasm affecting the legs and muscles of respiration. At the conclusion of the spasm, which recurred for some hours, the patient was left in an excessively exhausted state, and was unable to turn himself in bed." He quickly recovered, and the attacks of tic douloureux *never returned.*

In another case turgescence of the capillaries of the face and a decided increase of surface temperature were observed, so that the man looked drunk. The most distressing symptom was generally the extreme dyspnœa from spasm of respiratory muscles.

The chief pathological appearances after fatal cases are : (1) Sanguineous effusion in spinal canal. Membranes strongly injected. Substance normal. (2) Heart flaccid and friable. (3) Flesh of muscle soft and doughy.

Its physiological action is stated to be increase of reflex excitability of spinal cord and nerve centres, both vasomotor and respiratory. Small doses do not seem to affect the motor nerves in experiments on animals, whilst large doses paralyse them, and Brunton says the paralysis is not entirely due to the exhaustion from the convulsions.

The special actions of strychnine, according to Brunton, in small doses are the following : The brain is excited, its action stimulated like from alcohol or caffeine. Respiration is quicker and deeper, and expectoration is promoted. The heart's action is increased and blood pressure also. Hearing and smelling are more acute, and there is an increase of saliva and appetite. Increase of movements of stomach, and peristaltic action of bowels.

There is no medicine of more general action than strychnine, and none with better defined symptoms. If any medicine may be called a general stimulant of vitality it is this one, and well merits the distinction of polychrest bestowed by Hahnemann on nux vomica as "one whose symptoms correspond in similarity with those of the commonest and most frequent of human diseases."

Hahnemann adds : " In this, as in some other medicines, we meet with symptoms which seems to be completely or partially antagonistic to one another, *alternating actions* which at the same time are *primary actions*."

Hale controverts this latter statement in reference to *strychnine*, and calls the increased reflex excitability of the spinal cord and the spasms as primary, and the subsequent exhaustion and paralysis as secondary, adding that massive doses cause death in the first spasm, and in the case of the frog without spasm at all.

I think, myself, that strychnine may well be brought into line with other drugs which stimulate functional activity in that over-stimulation is followed by depression, but it is singular in its action as stimulating all the nerve centres.

It may be compared, however, with other drugs as regards its action on a single organ. For instance, strychnine and digitalis both stimulate the cardiac muscle, and render its contractions slower and stronger, but in poisonous doses strychnine causes extreme rapidity and weakness of the pulse, and with digitalis the pulse becomes weak, rapid, and irregular.

Again, strychnine in small doses causes increase of appetite, and more complete evacuation of bowels. In larger doses it produces (prover A. F., Encyclopædia) griping pains in bowels and constipation, like nux vomica.

In small doses strychnine causes deeper and more complete respiration, and in larger doses spasm of the muscles of respiration with suffocation, which finds its analogue in arsenic.

Moderate doses of strychnine stimulate brain activity, while the provers complained of (1) considerable confusion of ideas, general drowsiness and headache ; (2) a dull pain in head and eyes, with feeling of stupor and great weariness and loss of memory after 25 drops ; (3) and extreme lowness and gloom (after 30 drops). Here it resembles alcohol.

In a similar manner the icy coldness complained of by all the provers was followed in the first prover by a fever of an adynamic intermittent type ; in the second and third provers by burning heat in eyes with feverish thirst, and in others by intense burning all over and perspiration, forcibly reminding us of aconite.

Again, the spasms and convulsions in cases of strychnine poisoning are followed by intervals of exhaustion without any uneasy sensation, and some touch or movement is generally necessary to excite the spasms afresh. Moreover, they are of a clonic character, beginning with rigidity, proceeding to spasm and cramp, and followed by entire relaxation. Atropine has a similar action and reaction.

In some cases there seems to be an alternation of symptoms, but there is to be noted, as a rule, a decided action, followed by a reaction in the opposite sense, or stimulation and depression.

If this be acknowledged, there will be no difficulty in admitting strychnine into the list of drugs which may be prescribed under the Hahnemannic formula not in substitution of nux vomica, but for somewhat different and distinct morbid conditions. The range of its action is not so great as nux vomica in gastric disorder, and in my experience its therapeutic effects are manifest in doses just short of the production of its physiological action, at all times observing the sound rule of the latter being entirely absorbed by the former.

THERAPEUTICS.

The action of strychnine is so associated in one's mind with spasm that one is apt to forget the symptoms both preceding and following the spasmodic state. I propose to divide them into three stages . (1) Excitability, (2) spasm, and (3) exhaustion, and to consider some of the diseases corresponding to each stage.

(1) *Stage of Excitability.*—I put in this category three diseases which strike me as analogous. Headache, hysteria, and insomnia. The kind of headache I find benefited by strychnine is of a spinal character spreading from the nucha over the head and not associated with gastric disorder, but accompanied by some exhaustion, dulness and stupor, alternating with excitability.

The insomnia often arises from similar cause. When a patient is too tired to sleep and the brain is oppressed, probably indicating vaso-motor dilatation, strychnine often acts like a charm.

In hysteria, strychnine competes with ignatia in its action. Where the symptoms are more chronic and associated with asthenia or anæmia, strychnine has a more powerful and lasting effect than the later medicine.

(2) *Stage of spasm.*—Much has been made of the want of success of strychnine in tetanus as an argument against the doctrine of Hahnemann. There is some evidence in its favour, however, but I would point out two facts which must be taken into account, viz., the spasm of strychnine is of a clonic character, with complete relaxation, and needing some slight excitant to renew it, whereas tetanus spasm is tonic, with incomplete relaxation; and, secondly, the toxins in this disease become fixed in the central nerve cells, and are not likely to be reached through the blood (Whitla). On the other hand, considerable success has been recorded of the administration of strychnine in other spasmodic diseases. Trousseau lauds it in chorea, and gave largish doses. Eustace Smith recommends it in chorea, as well as for the reflex convulsions in growing boys and girls (1 or 2 mins. of liquid strychnine with ergot), and it has been given with curative results in idiopathic epilepsy and in writer's cramp. Laura says, in his "Pharmacotherapie Dosimetrique," that its effects are marvellous in the latter disease, and I think the resemblance of the symptom to those produced by strychnine is very close.

(3) *Stage of exhaustion.*—It is for diseases, and they are numerous, resembling this stage of strychnine poisoning that the drug is most frequently exhibited.

In paralysis of various forms and paresis, strychnine rivals electricity in its effects. In diphtheritic paralysis it is perhaps the only remedy to be depended on. In atony of the bladder and of the bowel, and in prolapsus of rectum or anus, it (is indicated and) is reliable. In convalescence from acute disease it is, in my experience the principal remedy to keep in mind. It stimulates appetite, and like no other drug in the pharmacopœia, helps to restore tone to the muscles and promote a feeling of health. Its good effects are also well seen in exhaustion from incurable disease.

In the weakness of old age I am accustomed to rely greatly on strychnine administered from time to time for long periods. I cannot say that it prolongs life, but it seems to stimulate both the mental and the physical functions on which so much of the cheerfulness of life depends. Where it agrees, therefore, it is a valuable medicine.

In the exhaustion so characteristic of many cases of anæmia and chlorosis, strychnine is almost as indispensable as rest, and I could relate many cases which did not respond to iron or arsenic, but quickly mended when strychnine was added to the iron.

(2) *Nerve centres.*—Strychnine in the course of poisoning the nerve centres simulates many diseases, and is accordingly curative of these conditions.

In the cardiac sphere it is a powerful remedy in cardiac weakness, muscular atony, dilatation and feeble pulsation, as well as exhaustion from acute disease.

In the respiratory sphere I have found it most useful in dyspnœa, chronic asthma, emphysema, congestion of bases of lungs. In brain disorder I have found it relieve sleeplessness from exhaustion and depression from over-work. In stomach complaints it gives place to nux vomica, but in sea-sickness it is sometimes valuable as a preventive, and it is recommended in neuralgia of gastric plexus with spasm.

The action of strychnine on the vaso-motor centres is worthy of further study. It greatly increases the normal tone of the blood vessels, as well as the reflex excitability of the nerves, and the blood pressure is raised in experiments on animals, so much so as to keep this up even when the cord is separated from the medulla. When this goes into spasm we get the icy coldness complained of by the provers, but which is followed by relaxation, with fever or sweating, and finally profound exhaustion. The diseases I would mention as corresponding to these conditions are cholera, collapse and influenza, and the acute stage of some inflammations.

Some cases of influenza strongly resemble the symptoms and course of strychnine, and I cite here two cases where I gave strychnine with very satisfactory effect.

Case 1.—C. J., aged 72 years, a feeble old man of the nervous type who was very susceptible to chills and suffered from rheumatic pains on change of weather. He had been in fair health for the past few months. His wife had an attack of influenza of the abdominal type a fortnight previously without fever, and had entirely recovered by September 26. Without any exposure he experienced a sudden chill on October 3. I saw him on the 5th, and he complained of extreme rigors and icy coldness, with pains in head and down spine. His face was flushed and perspiring. His bed was piled with blankets and yet he was shivery and restless. His pulse was small and irregular, and his temperature subnormal. He had sickness, bilious vomiting and loose dark stools. He had a great deal of nervous apprehension, and spasm of throat of a nervous character. I gave him aconite, followed by veratrum. On October 6 the diarrhoea and sickness were relieved, but the pain, low temperature, and sensation of coldness persisted. It struck me that this was just a strychnine case, so I ordered a half milligram dose of the arseniate every two hours for eight doses, equal altogether to about $\frac{1}{16}$ grain. The next day there was considerable reaction. The temperature went up to 99·8°, the pain disappeared, and the pulse became fuller. A few doses of aconite were given, and then the strychnine was resumed, and recovery was very rapid, the patient getting up and walking three days afterwards with a vigour which surprised me. There were no apparent symptoms produced by the strychnine, the whole physiological action being absorbed by the therapeutical, and the spasm of throat disappeared during the continuance of the drug. The sequence of symptoms in this case seemed to correspond very closely to the first and second stages of strychnine, viz., excitability and spasm, hence the stage of exhaustion was much less marked than usual, and recovery correspondingly rapid. This is not an unusual case of influenza, but I do not recollect ever seeing strychnine pointed out as the homoeopathic remedy for it. If you agree with me that it is so I feel confident you will use it, and with success.

Case 2.—Mrs. S., aged 50 years, sent for me on February 8, with acute symptoms, weak and rapid pulse and severe pains, rigors, and temperature of 101° F. One dose of 8 grains of antipyrin was given first to relieve the pain, and was followed by gelsemium during the night. The next day the pains were subdued, except some headache, and the temperature reduced to 99°, and there was perspiration. Strychnine was then given on account of the great exhaustion in doses of 1 milligram, or $\frac{1}{65}$ of a grain, three times a day, and belladonna by night for the headache which persisted. On the 12th there was a recrudescence of fever. Temperature 102·5°, and strychnine was resumed, with gelsemium at night. On the 13th the temperature fell to 99°, and did not rise over 100° afterwards, strychnine being continued for several days in same doses. There followed a very distressing cough, with congestion of larynx and bronchi, needing several remedies, kal. bich., drosera, hyoscyamus and rumex in turn; also great heart weakness, for which caffein was prescribed. Strychnine was continued for the great exhaustion, but the patient was practically well by March 1, or three weeks after the beginning of the attack, which period contrasts very favourably with similar cases which I have treated without strychnine where the symptoms were of equal severity.

Strychnine should not be forgotten in cholera, and in collapse from other causes it is too well known to need special remark, except that to get the effect rapidly it needs to be injected hypodermically or *per rectum* in doses of from $\frac{1}{20}$ to $\frac{1}{10}$ grain.

Hahnemann recommends nux vomica in chills, saying, "Serious ailments from catching cold are often removed by it." This is more true of strychnine, and I think it is indicated in the cold stage of fevers and acute inflammations, more especially pneumonia.

I would add one word more respecting the action of strychnine on the muscular system. Brunton says, "Small doses do not affect the motor nerves, large doses paralyse them. This paralysis is partly due to exhaustion from the convulsions, but not entirely, since if one sciatic nerve of a frog be divided before poisoning, so as to prevent any convulsions in that limb, it still loses its irritability, though not, so soon as the undivided nerve." This paralysing effect on the motor nerves was well seen in the case of poisoning before mentioned, where the first prominent symptom produced in a man, who had by a mistake swallowed 3½ grs. of strychnine, was a sense of numbness in the back of the legs, the numbness being accompanied soon by a want of power and dragging of the muscles of the legs, which became so great that, as he described it, he had to put his hands at the back of his thighs in order to push his legs along. This occurred before there was any spasm.

I argue, therefore, that when prescribing strychnine in small doses for this muscular inertia, which is such a common symptom, not only in general debility, but at the beginning of acute disease I am giving a drug which directly causes this symptom, in a large dose, and is therefore in homœopathic relation to it.

There are several other diseases in which the exhibition of strychnine has been attended with striking results, and which are more or less in the relation of a simile, such as facial neuralgia, alcoholism, sexual weakness, and enteric fever, but I have no experience in those diseases worth recording. In reference to the last-named disease it is worth while to notice a statement of Professor Hare, of Philadelphia, who says (*Medical Annual*, 1903): "With the continued administration of strychnine in the course of prolonged exhausting disease" such as typhoid fever, the drug "fails after a certain length of time to produce a true stimulant effect, and simply produces nervousness and tachycardia." He has also noticed a form of delirium taking the place of the usual twitching spasm resulting from too large doses of strychnine.

THE DOSE.

Finally, what is the best dose for the administration of strychnine?

My own practice has been mostly with substantial doses, either drops of the liquor of the British Pharmacopœia or granules of the arseniate, or the hypophosphite, but I have occasionally met with headache in consequence, though never in an acute case. I think the patients needing smaller doses are probably those corresponding to the first stage of strychnine action—the stage of excitability. At the other end of the scale the condition of profound exhaustion or collapse is to be met by the injection of much large doses, whilst diseases corresponding to the spasm may need doses at one time small and at another moderate. I have rarely noticed aggravation of symptoms follow a moderate dose of strychnine; indeed, not so often as with nux vomica, which occasionally produces unpleasant symptoms in pilules of 1x dilution.

Dr. JOHNSTONE (from the chair) said he was sure the members felt indebted to Dr. Nicholson for having come such a long way to present his interesting analysis of the therapeutics of strychnia. Strychnia was a drug he personally had used very much empirically, relying more upon it as a stimulant in cases of depression and exhaustion than upon its homœopathic employment. It was well that such papers should be read, reminding them that there were homœopathic uses for drugs which, like strychnia, were widely used in other ways.

Dr. DYCE BROWN referred to the point alluded to by the President, namely, the use of strychnia as a stimulant in cases of debility and weakness. There was not the least doubt that this drug was a most valuable remedy in certain cases of debility and exhaustion from an acute illness, during convalescence. He thought Dr. Nicholson was hardly right in dividing the physiological action of strychnia into three stages. He (Dr. Dyce Brown) looked upon the symptoms beginning with the mild form of excitability, going on to the spasm, and finally to the exhaustion, as simply an increase of the same type of physiological action. There, he thought, they had the *rationale* of its use in what might be called a "tonic" in cases of debility. The small dose was used, developing a primary action, which was not usually perceived in cases of poisoning, and in cases of provings large doses were used. In the latter cases the physiological symptoms gradually developed, increasing according to the severity of the dose; and the primary effects, which were made use of when the medicine was used as a "tonic," were those that were not noticed, generally speaking, in the proving. The whole range of increase in quantity from the excitable condition to the spasms and exhaustion was the field in which they looked for the use of strychnia. And in the most general view it could thus be regarded as homœopathic to those states in which it acted as a "tonic." Excitability and spasms were really indications of depressed nerve power, and were naturally followed by exhaustion, so that all through its action strychnia was homœopathic and not allopathic as a nerve "tonic," if one may use the word, and hence the benefit received from it.

Dr. GOLDSBROUGH thought they must hesitate to regard the appearances which issued from the effects of strychnine as opposite states. They were consecutive states, contrasted appearances, but all induced by the action of the drug, the normal state being the equilibrium which obtained between the contrasted states. In giving the drug as a medicine they should consider the whole range of its action rather than one phase of it, and consider also, taking the whole series of symptoms into consideration, whether the drug was being given homœopathically or not. He was somewhat surprised to hear Dr. Dyce Brown bring this point forward, because it seemed to him to rather go against his former exposition of the action of homœopathic remedies as opposite in large and small doses. It seemed to him (Dr. Goldsbrough) that the consecutive effects pointed to the dose. Whether they had to deal with an apparently exhausted state, or an apparently excitable state, indicated the difference in the dose which ought to be given. Dr. Nicholson had suggested doses which were, on the whole, too large in the cases that were indicated. For instance, in the stage of apparent excitement, which was the first observed effect of the drug, one would think that a much higher dilution would act better than the dose Dr. Nicholson had usually used. If this principle were correct it led to the point as to how far one could push the drug in cases where symptoms of exhaustion were apparent. There, it seemed to him, the doses which just came short of inducing a physiological action in the healthy body were the doses which should be used in cases of disease, because they were not likely to get any cases of overstimulation from the use of them. The doses recommended by writers of the old school were large doses, which must, in their nature, produce symptoms of apparent over-stimulation, and therefore more exhaustion in the end. Those doses, it seemed to him, should be avoided. The question of pathology was a very important subject which had to be considered in the use of strychnine. In cases of disease of the nervous system, where there was a pronounced pathological lesion, one would think that strychnia was contraindicated. It was emphatically in those cases where there was apparently increased or diminished functional activity where strychnia was indicated. In Dr. Bodman's paper on diphtheritic paralysis there was shown that in this disease there was a distinct pathological change in the spinal cord and in the nerves, and until those, changes had subsided the use of strychnine would be contraindicated, or indicated only with the greatest possible caution in its use. The same remarks applied to its use in a great many degenerative diseases of the nervous system. He knew it was popular in the present day to give large doses of strychnine in some forms of paralysis where the pathological state was not known; for example, in general paralysis of the insane, and cases simulating tabes. They should be very guarded in the use of the drug in those states. If they were sure that pathological change had been set up, strychnine would do more harm than good.

Dr. STONHAM thought that in considering the action of strychnine it was best to remember its primary function, *i.e.*, to stimulate the motor centres and the reflex action of the spinal cord. It was in those cases that strychnine was so useful. Cases such as spasm of the muscles, cramps from an undue reflex excitability of the cord, or spasm of the bladder, could be treated with strychnine on homœopathic lines, because they were exactly similar to cases of poisoning by strychnine. But when strychnine was given for exhausted conditions, he thought they got off homœopathic lines altogether. There was not a drug in the pharmacopœia which, if pushed far enough, would not cause exhaustion, and he thought the stage of exhaustion was not to be taken by a homœopathist as an indication for the prescription of the drug. When strychnine was given for cases of exhaustion of the nerves it had to be given in fairly large doses, and decidedly on allopathic lines; it was to gain the primary stimulant action of the drug on the motor centres, and it could not really be considered as a homœopathic action at all. The same was the case when strychnine was injected in cases of operation after collapse for its primary stimulant action on the respiratory centres. Similarly, one would expect it to be useless in cases of hemiplegia, because it was given merely as a stimulant, and not in any sense as a drug which had any curative action.

Dr. CLARKE thought they were too apt to regard the alkaloids as being identical with the drug from which they were derived; but they were really separate entities, and ought to be studied as such. When they had a drug like strychnine, which had been magnificently proved, as it was found in the Materia Medica, they were not dependent upon the nux pathogenesis at all for their use of it. He should be inclined to say that

Dr. Nicholson was a somewhat heroic prescriber. He was glad the author brought forward some of his cases, and thought it would be more useful if he had brought forward still more, and had given the crucial indications for his prescription in each case. He was unable to take much stock, as the Americans would say, of the primary and secondary actions of drugs, because he found that if any strongly-marked symptom of a drug was obtained, be it primary or secondary, and the drug corresponded with the case in general particulars, the curative action of the drug would be obtained. If they could get the exact sequence of the symptoms in the case to correspond with the exact symptoms in the proving, they might go as high as they liked, and would cure their case. But it was very rare thing to be able to get the exact sequence of symptoms, and it was not necessary to do it. An individual symptom could often be analysed, and cases cured, with pieces, as it were, of a symptom. He wished the author had given the differentiating point between the actions of the different salts of strychnine. The salts of alkaloids were rather peculiar in that the acid did not displace an atom of the alkaloid itself, so that they were really different combinations from the same salts of the alkaloids. Nicholson used the arseniate of strychnine in some cases, and he (Dr. Clarke) wished the particular indications on which that preparation had been prescribed had been given. He had used strychnine a good deal in cases of influenza. The late Dr. Cooper pointed out to him the correspondence between strychnine and a good many cases of influenza, especially in respiratory cases, and he had used it in the sixth attenuation with very good results. There was one important point of homœopathic practice, namely, the knowledge of antidotes. It was often found in patients who came from allopaths that they had been pretty thoroughly poisoned by strychnine. In those cases the necessary remedy, was sulphur as an antidote to the strychnine. He had one case especially in mind, that of a lady of about middle life, who had had, under allopathic treatment, some very desperate heart attacks, from which she had apparently recovered by the heroic use of strychnine. The strychnine had been given to the patient over a considerable time. When she came to him she was in a state of rheumatic crippling of almost all the joints, marked by extreme stiffness. That symptom was one of the great indications for strychnine, and the only remedy which did her good was sulphur in a variety of potencies, mostly high. He had mentioned in his Dictionary a case of locomotor ataxy in a man who had been at one time under Sir Felix Semon for laryngeal crises, which were cured with strychnine. That was a case in which strychnine acted apparently where there was an actual organic spinal disease; the strychnine was exquisitely homœopathic to the case.

Dr. Nicholson, in reply to Dr. Clarke, said that personally he had not proved that sulphur was an antidote for strychnine. He could not tell him why he used arseniate of strychnine in particular cases in preference o other preparations, except that when arsenic was indicated in a case as well as strychnine, particularly when there was exhaustion or restlessness, or anæmia, or fever, he thought it was quite proper in such a case to give arseniate of strychnine rather than any other preparation. He thought it was pretty well known, probably for the same reason that Dr. Ord gave iodide of stannum rather than stannum pure, that the salts of strychnine were more soluble in the body than strychnine proper, and an ordinary solution of strychnine was not a very stable preparation. Too much of any preparation of strychnine could be given. If one wanted to continue strychnine for a length of time it was better to give a more soluble salt than strychnine alone, because the small vessels of the kindeys were probably in a state of contraction after the long-continued use of strychnine, and did not excrete in the manner they ought to do. In the same way phosphate of strychnine would be given when phosphorus was indicated by the symptoms of the patient. He did not think there were any reliable provings of the different salts of strychnine to go upon, and therefore one went upon the indications for the two medicines alone. He was interested in what Dr. Clarke said of Dr. Cooper having recommended strychnine for influenza, and that Dr. Clarke had obtained good results with the sixth dilution. He had not seen it recommended for influenza, but in two of the cases he mentioned the symptoms so resembled strychnine poisoning that he believed any dilution of strychnine would have been just as serviceable as the paticular form in which he gave it. The facts, to his mind, were very marked. He thought it was rather useless to discuss the three stages; he put them down in that form to connect them with different diseases which suggested those various stages of strychnine symptoms, putting down insomnia and hysteria as suggestive of the very early stages of strychnine poisoning, and the others as suggestive of the later stages. He quite agreed with what Dr. Goldsbrough said with regard to paralysis. When there was a definite lesion it was not very safe to give strychnine, but might be given for a short time, because if the disease were curable, strychnine was just as helpful in its way as electricity.—*The Journal of the British Homœopathic Society*, January 1905.

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COMMON DISEASES AND THEIR TREATMENT.

XI.

(Continued from March Number p. 105.)

Nitricum acidum has the following symptoms : *pain in bones; drawing pains in almost all parts, suddenly appearing and disappearing ; drawing pain in periosteum of all bones, as before intermittent fever ;* tearing of nerves with thirst ; *inclination to take cold* (Ka. c.) ; pain in back after taking cold ; sensitiveness of whole body to open air ; *weakness* (Ka. c., Phos. ac., Merc., Mur. ac., Sul. ac., etc.) ; spasmodic stiffness of back and whole body ; shooting pains, as if caused by splinters stuck into affected parts on slightest contact with anything ; *sensation as if a band were around* affected *parts ;* as though a band around bones ; jerking pain in inner parts ; rickets ; inflammation, swelling and suppuration of glands ; pains on change of weather ; pains which are perceptible during sleep ; aggravation towards evening, especially of the drawing pains ; aggravation on lying down ; *most symptoms disappear when riding in a carriage*

(Graph.); cracking of vertebrae; tensive pain in muscles of neck; *stiffness of nape of neck;* pain between scapulæ; lumbar region as if stiff; cracking of joints on motion; jerking in joints with tearing; aching in bones; *axillary glands swollen, painful and inflamed; bruised pain in upper arm* so that she could not raise it; tearing in elbow extending to wrist; bruised pain in wrist; *tearing in lower extremities worse at night; tearing in bones of lower extremities; bruised pain as from fatigue; deep seated feeling in extremities as if dogs were gnawing the flesh and bones and as if the sinews were pulled up; tensive pain in right hip; pain in hollow of knee as if stiff; cracking of ankles when walking;* sprained pain in ankle; stitches in malleoli; inflamed corns; pain beneath nail of great toe; toes, soles, corns sensitive as if inflamed; sore pain in shin of tibia from ankle to knee.

The peculiarities of the pains are that the bones and ends of joints are affected. Another feature is the sensation as if a band were round the affected parts and round the affected bones. The inflammation of bones is the characteristic of nitric acid. The tension of a band round the inflammatory portion helps its use. The pain in the shin of tibia is an indication of the medicine. Allen writes: "In general, indicated for the bad effects of Mercury, to which it is similar. General aggravation from water, on washing (Phos.). Foul odor of all excretions; foul breath, offensive salivation, etc. The pains are almost always splinter-like (Hep.)."

Nitric acid has been mostly used in cases of syphilis, where either bone or gland is affected. In other cases of inflammation its use remains unknown. The general belief is that it is an antidote to some kind of miasm. Clarke says: "But in addition to its miasm relationship, *Nit. ac.*, has drug relationships of great importance. It is one of the chief antidotes of *Merc.*, and it is in cases of syphilis that have been over-dosed with *Merc.*, that its action is most brilliant. I have known it do equally well when used after over-dosing with *Kali iod.*, whether in syphilitic or non-syphilitic cases." Hughes thus speaks of

Guernsey's indications: "Dr. Guernsey's indications for Nitric acid are chiefly offensive urine, smelling like that of horses, restless after midnight, and (in women) violent downward pressure in the pelvis, with pain in back and thighs."

Amelioration of symptoms due to Nitric acid as illustrated by riding a carriage in the following case of Dr. Hendricks is cited by Hoyne: "A lady making experiments with a galvanic battery was exposed for some time to the fumes of *Nit. ac.* At once she is taken with a peculiar anguish; runs to her physician; but as he is not at home, hires a carriage to drive to the house where she expects to find him; during her ride all her anguish is gone; arrived at home, she feels as bad as ever, and feels herself thus forced to drive about the whole day till all the effects of the *Nit. ac.*, have passed off." This peculiar anguish may come on in many kinds of troubles and especially in dyspepsia.

Nux Moschata is Nutmeg. Of it Hempel and Arndt write: "This is the fruit of the myristica fragrans, a tree growing on the Molucca Islands. It consists of an outer envelope, and of a reddish shell known as *Maco*, which is closely adhering to the nut, and leaves depressions upon it when removed. The nut itself is dipped in limewater by the Dutch before it is shipped off as an article of trade. The limewater, traces of which may be seen on the nut, protects it against the ravages of worms which are apt to perforate its interior."

The tincture from the dried nut necessarily obliges the slight mixture of calcarea carb derived from the limewater, in which the nuts are dipped to preserve them. Whether that calcarea aggravates or ameliorates the effect of the drug remains unknown. Clarke remarks, "Tincture of powdered seeds deprived of the Mace. This is the official direction. But it would be well to make a tincture of the nut with the Mace, as some symptoms of Mace are included. Also a fresh nut and fresh plant tincture should be prepared and tested." Hering has recommended the trituration and tincture of the dried seed. We are disposed to side with Clarke in having the tincture from the nut as well as the mace. It would be better if tincture can be prepared from the fresh product.

Nux moschata has the following symptoms: *Strange feeling over whole system, with almost irresistible sleepiness, jactitation of muscles (Hyos., Nux. v.), intermittent wandering digging in small spots;* wandering pinching that increased and decreased in waves, in spots in bones; pains in parts on which he lies, if he lies on a moderately hard substance; soreness and bruised sensation; *faint* (Mosch., Sep., Dig.); *Faint and sickly sensation;* digging and pressive pains, which pass from place to place, occupy only a small space, continue but a few moments, and so on return; bruised pain at side of lumbar vertebrae; sensation of fomentation in muscles; *tingling in toes as after freezing, worse metatarsal joints, it extends over sole and heel, which also pain as if bruised from jumping.*

Allen writes of amelioration in open air. Clarke on the contrary holds that there is " aggravation in the open air; in cold air; in cold and wet weather; when the weather changes, whether from dry and pleasant to wet, or *vice versâ*, until it becomes settled; in wet weather; in windy weather; lying on painful side.—Better in the room; air being warm; in dry weather."

Hempel and Arndt record the following case. "Mrs. B. S., aged about thirty years, at 11 A. M., grated a large nutmeg upon an egg and some sugar, and ate the whole of it between then and 5 P. M. During the evening she had dullness of senses and loss of control. She could have been led anywhere without resistance. Loss of will power. The upper eyelids were swollen and red around the borders, and drooping. She looked as though she had been weeping. Her hand, to her, looked red, too large, and as if covered with red spots. Vision was indistinct; everything looked red. She now has a sensation as if everything had fallen back against the rectum accompanied with violent straining and urging to stool. Crampy, forcing down pain in the bowels and rectum. Stools large and mushy. Mouth dry, but no thirst. These symptoms were all relieved within an hour by a dose of nux vomica. I called again at 7 A. M. of the next day, and received from her the following description of her symptoms: I had no desire for water from the time I commenced taking it, although the mouth and lips were very dry. Frequent passages of light-coloured urine, clear like well-water, but in small quantities and with constant desire. There was also protrusion of the rectum. The head felt full and expanded, but did not pain. I felt foolishly happy, but could not talk; had no desire to talk; never felt so happy in my life. Everything looked too large; there was darkness and mist before my eyes; sensation as if I had been crying; my eyes and lids felt swollen, bulged out. There was a feeling as if a string had been tied tightly round the arms, and all the blood had rushed into my hands. I felt perfectly easeless; nothing could have offended me. The stools at first were very black and hard; afterwards watery, and then mushy. There was numbness and fulness of the hands; reeling and stumbling when walking. (Dr. H. N. Martin in *Hahn. Monthly*, September, 1870."

We are interested at present with the "*feeling as if a string had been tied tightly around the arms, and all the blood had rushed into my hands.*" The congestion and inflammation of the arms with the feeling as if a string had been tied round them should help in cases where the symptoms are mainfested without much pain. Indifference is another leading feature. Dryness of mouth and throat without thirst is said to be a key-note by Guernsey. It can be used as a medicine for traumatic inflammation is evident from the following case in Hoyne.

"*Shock of injury.*—Dr. J. C. Morgan gives the following: constant sleepiness, skin cool and sensitive to exposures, oppression from pit of stomach to chest; slow, rattling breathing; apoplectiform dreaminess; the least exertion causes great weakness and sleepiness; diarrhœa."

Nux vomica is the Prince of the homœopathic remedies and can be said to be mostly of Indian origin. It is found in tropical India, rare in Bengal but common in Madras and Tenasserim.

Dr. George Watt in his Dictionary of Economic Products of India says:

"Nux vomica does not appear to have been used in early Sanskrit medicine, though it is quite possible that some part of the tree may have been used by the aboriginal tribes of India from a very early date, since we find the wood used now as a common tonic over very extensive tracts of country. In the more recent Sanskrit compilations we find it mentioned under its vernacular name Kuchila (Dutt). Among the Hindu practitioners of the present day, the Seeds are, in various combinations used as a medicine for dyspepsia and diseases of the nervous system. On the Malabar coast the ROOT is given in snake-bite, and in Bombay the WOOD is a popular remedy, that of .S. COLUBRINA, in the dyspepsia of vegetarians. In the Konkan small doses of the seeds are given in colic combined with aromatics, and the JUICE of the fresh wood (obtained by applying heat to the middle of a straight stick to both ends of which a small pot can be tied, is given in doses of a few drops in cholera and acute dysentery. (*Dymock*). The OIL from the fresh seeds is used as an external application in chronic rheumatism."

Further on, "In European medicine it was first known about the middle of the sixteenth century when Valerius Cordus who wrote in Germany gave a very accurate description of the appearance of the seeds, but for, at any rate, a century later it was not used in medicine, since Parkinson (1640) remarks that its chief use was for poisoning cats, dogs, crows and ravens, and it was not till the beginning of the present century (nineteenth) that its value as a nervine tonic was recognised by European practitioners."

In Sanskrit literature its name is Kuchela (कुचेल), and it is principally used in leprosy.

The seeds contain the alkaloids Strychnia, Brucia and Igasuric or Strychnic acid. In the abridged edition of Pereira's Materia Medica by Bentley and Redwood the following with regard to Brucia is mentioned:

According to Dr. Fuss, brucia is not a peculiar alkaloid, but a compound of strychnia and resin (yellow colouring matters). He says that he has proved this both analytically and synthetically, and he ascribes this property of becoming reddened by nitric acid, and by chlorine, to the resin present. The *Salts of brucia* are readily formed by saturating dilute acids with brucia. They are soluble, crystallisable, and have a bitter taste." Dr. George Watt says: "Nuxvomica seeds contain two alkaloids, ·2 to ·5 per cent of strychnine and ·12 to 1 per cent. of brucine, united with an acid, strychnic or egasuric acid... These sub-tances seem to exist not only in the seeds but in the wood and root, and the leaves of the parasitic plants even, growing on the tree, seem to acquire its poisonous properties and to contain the same alkaloids."

It will be seen that the proportion of Strychnia only varies from ·2 to ·5 per cent., whereas Brucia remains either so high as ·1 per cent. or it is so low as ·12 per cent. This variation may create some difference in the drug-action. If fully ripe seeds are taken for tincture perhaps the uniformity of action may be ensured.

Tincture of fresh ripe seeds have been prepared by us and it has given a deep red colour unlike that imported from foreign countries. The dilutions from these tinctures have given us ample satisfaction. In one case the 6th decimal dilution from the foreign tincture could not produce the desired result. The administration of the 6th decimal dilution from our tincture proved satisfactory. For this reason the preparation and use of the tincture of those homœopathic medicines which are available in India would be the best course that we can adopt.

The action of Nux vomica depends neither on Strychnine, Brucine nor on Igasuric acid. It is due to the combination of all the three. The proof of this assertion is not wanting. Like all drugs, the effect comes from the natural combination.

Clarke says: "The tree from which the *Ignatia* 'beans' are obtained is unknown, but is not doubted to be a *Strychnos;*

the seeds actually contain a larger proportion of *Strychnia* than those of *Nux vomica*. The difference in the character of the two remedies proves the wisdom of Hahnemann's method of studying medicines. If there was nothing more than the chemistry of the drugs to go by *Ignatia* and *Nux vomica* might be used indifferently; with the knowledge that Hahnemann has given us of their characteristic features they are seldom even thought of in connection with the same case."

The difference of action between the tincture of the seed of Nuxvomica and that of its bark settles the issue that the action of Nuxvomica is not due to Brucine. The bark contains more of Brucine than strychnine.

It has been supposed that "the best time to give *Nux* is in the evening at bed time, that is, well away from the time of its chief aggravations." In India, it is generally administered in the morning and no difficulty has been observed on account of it, though morning is said to be the time when it has its period of aggravation. Nux vomica is mostly used in this country for evening fever with constipation. The administration of the medicine suits best in these cases in the morning. Nux has the following symptoms: *contractive pain through whole body;* pain in small parts in which he was lying; pain in voluntary muscles worse on neck and limbs and also worse on motion; *renewed soreness in old wounds that had healed;* bruised sensation; *everything makes too strong an impression* (coff.); *takes cold from the slightest draught* (sul., kali c., etc.); oppression of whole body with pain in legs as after a long walk; weakness in morning *after rising greater than in evening on going to bed;* shooting, shaking pains, or jerking, tearing, and drawing pains, with sensation of torpor and of paralytic weakness in parts affected; complaints in back, small of back; something seeming in the back which prevents turning over; pains in limbs and joints as if they had been bruised, worse in morning; pain in vertebrae; sprained pain in scapulae; bruised pain in dorsal muscles on touch; *bruised pain in lumbar region and in knees; bruised pain on bending far backward; bruised pain in ex-*

tremities in morning, worse in joints and worse the longer he lies, better on rising; bruised pain in joints and shafts of long-bones in morning; bruised feeling in thigh; in muscles of thigh and knees; swelling of veins in arms and hands: pale swelling of hands and fingers; hot and painful swelling of thumb which becomes an abscess at the joint; red swelling of leg, with black painful spots; swelling in back of feet; ulcerative pain in roots of nails on touch.

All these facts disclose that the aggravation of Nux vomica is in the morning whereas clinically we find that the evening aggravation of diseases can be checked in many cases by Nux vomica. Allen writes: "There is aggravation of all symptoms early in the morning. Aggravation from any mental effort, sometimes worse in open air and from motion, sometimes relief in the house or when at rest, or *vise versá*. There is general relief from unbroken sleep, but aggravation when the sleep is disturbed; the patient is usually very drowsy early in the evening and wakes very early in the morning, but after falling asleep a second time he wakes finally with all the Nux aggravations."

The drowsiness in the evening is a characteristic symptom which serves our purpose best in the administration of the medicine.

Clarke gives a long list of aggravations and ameliorations. They are as follows: "Symptoms are worse in morning; in open air; by motion; by mental exertion. Each of these is a characteristic; a combination of two or three of them may be considered a key-note. Worse in morning is the greatly predominating feature of Nux. (The best time to give *Nux* is in the evening at bed time, that is, well away from the time of its chief aggravations). Cough and some other symptoms are worse in night; worse after midnight; worse—3 or 4 A. M. During day, drowsiness. Menses return at full moon. Although *Nux* is sensitive to chill, draught and air, most symptoms being worse by cold, cold water, and by getting wet; still the symptoms generally are worse in dry weather, better in wet weather. But wet weather makes worse facial neuralgia; and wet, warm weather causes gastric and bilious fever. Warm room and warm covering decreases headache. But warm room causes fainting. Summer heat is insupportable; sunshine makes worse headache. Open air decreases flatulence and asthma and makes worse all other symptoms. Worse in wind. From rest better. Better from lying down; on side. Motion makes worse. Exertion, physical or mental, produces aggravation. Amelioration from shaking head. Eating produces aggravation. Milk sours in stomach. When eating: heat in head. Worse from coffee; cold food; cold water; wine. Alcoholic drinks produce aggravation and amelioration. Touch makes worse. By pressure better; but can not bear tight clothing. Rubbing makes worse. Riding in carriage produces sickness. Coughing."

According to Clarke, cough and some other symptoms are worse at night. The evening aggravation of Nux vomica remains untouched. In Jahr's Symptomen Codex, the following symptoms are said to be Characteristic Peculiarities of the medicine: "Many of the symptoms are aggravated or excited by *coffee, wine, smoking, watching and mental exertions*; also by windy weather. Many of the symptoms appear *early in the morning* (in bed or after rising), also *after dinner.* In the evening (8 or 9 o'clock) the pains are increased to an intolerable degree. Nux is particularly suitable, if the symptoms are worst early in the morning, particularly if the *patient wake at 3 o'clock in the morning* and then, *overwhelmed with ideas, fall again into a heavy sleep full of dreams, from which the patient wakes more weary than he was on lying down. The pains which come on by keeping one's self confined in a room, are relieved by a walk in the open air and vice versâ, some of the pains are relieved by lying down.*" The reference of the evening pains though not italicised has received sufficient clinical confirmation.

The cases which have derived benefit are those which form the sequelae in cases of inflammation. The residuary inflammatory deposit does not pass away. Renewed soreness of old wounds which have already healed up requires its use. The proclivity to cold is a leading guide. Bruised pain in the lumbar region, knees, extremities, joints and long bones may have the necessity of the medicine. The wide range of Nux vomica requires a vast field for application. Time alone can show the multifarious uses of the useful drug.

Osmium was first introduced by Hering and the pathogenesis of the metal was introduced in his Materia Medica in 1873. Of it Hughes writes, "the workman I have mentioned died of the intense broncho-pneumonia induced by the emanations from Osmium. But this action on the air tubes—so far at least as the upper part is concerned—is not local only; for the provers had great hoarseness and cough. Gmelin's experiments on animals show the oxide to cause death in convulsions without signs of inflammation, evidencing an action on the nervous system." It can be said that Osmium has another kind of picture besides the nervous affection. The inflammatory character is sufficiently manifested by broncho-pneumonia in workers of the metal.

A description of the nature of the metal is given by Clarke. It is as follows: "Osmium is a metal of the *Platinum* group, in association with which it is always found. It is the heaviest of them all and the most refractory, having never been fused. It derives its name (from the Greek Osmn, odour) from the pungent odour of the fumes of *Osmic acid*, which are evolved in the process of separating *Platinum* from its ore, and the effects of which have supplied a number of valuable symptoms in cases recorded by J. G. Blackley (C. D. P.). In the arts it is used in the alloy with iridium (*Iridosmium* or *Osmiridium*) for making the tips of gold pen."

Osmium has the following symptoms: Tearing to and fro deep in forehead and in bones of limbs; cutting and pinching pain in limbs; restless; great weakness and prostration; pain in lumbar and sacral regions, extending from scapula to sacrum worse on motion and cough; pulsating stinging on inner side of shoulder joint; pain in middle of humerus, in fingers, elbow, radius, and bones of fore arm; stabbing in tips of fingers; sudden pain in hip joint as if it would be dislocated, preventing walking; ulcerative pain in ankle; pain in bones of heel; fulness and restless in legs and feet, quite unbearable.

It has a close affinity with Iridium. Like that metal it seems to possess the power of arresting suppuration. In that view of their action both of them have a better power to prevent suppuration than Hepar. M. Laboucher of France used Iridium in 4th, Palladium in the 3rd, Platinum in the 2nd, and Osmium in the 1st cent. attenuations.

(To be continued.)

RAT AND PLAGUE.

(Continued from last Number p. 140.*)*

The most interesting verdict comes from the Report of the Indian Plague Commission. In order to ascertain the infectivity of rats, it was necessary to know the mode in which the plague bacillus effects an entrance into the organism of rats. The first point was to consider the possibility of the infective material effecting an entrance into the organism through small wounds in the skin. The Commissioners observe:

"With regard to the first of these questions, the German plague Commission state that in their experience a mere prick with a plague infected needle suffices to bring about the death of an ordinary rat. The Austrian Plague Commission while noting that the inoculation of small quantities of very virulent cultures is almost always followed by fatal results, record that in isolated instances rats showed no reaction to the inoculation of very considerable quantities of fully virulent cultures. We ourselves (and were dealing with cultures freshly isolated from fatal cases of plague) found that it was in all cases necessary to inoculate a very sensible quantity of plague culture in order to ensure the death of the animal, and in some cases we found evidence of great resisting power on the part of the rats with which we had to deal in Bombay.

"The data which are available with regard to the post mortem appearance of rats do not permit of a final judgment being arrived at as to whether the system is generally invaded in a state of nature through the channel of the skin. In certain proportion of cases buboes are found which seem to indicate cutaneous infection. It has been suggested that rats communicate the infection to each other by means of bites, but the circumstance that the bodies of rats are enveloped in a close covering of hair would seem to afford, at any rate, a large measure of protection against cutaneous wounds. It has been suggested also that the infection may be inoculated into rats by fleas. This question involving as it does the general question of conveyance of plague by insects, will be treated of in a subsequent section of this Chapter." The second point relates to the possibility of infection through the channel of the alimentary canal. The experiments performed by Drs. Gibson, Simond and Mr. Hankin produced negative results. On the other hand, the German and Austrian Commission find the experiment successful in some cases. The safe conclusion is that this mode of transmission is of a rare nature."

The third mode of the possibility of the infection being contracted by the channel of the nose and the respiratory tract seems more doubtful than the others. The Plague Commission notwithstanding all negative results catches the last and the least effective way of infection to save themselves from an ugly position.

The part played by insects in the dissemination of plague was put forward by Dr. Simond. Dr. Simond argued as follows: "Firstly, that plague rats are eminently infective when infested with fleas, and that they cease to be infective when they have been deserted by their parasites;

Secondly, that living plague bacilli are found in association with fleas which are taken from plague-infected rats;

Thirdly, that plague can pass from infected rats to other animals which have not come directly in contact with them or with their infected excretions; and Fourthly, that the fleas which infest rats will transfer themselves as parasites to men."

come to the knowledge of Dr. Bhal Chandra Krishna, where persons in Bombay had developed plague three or four days after handling dead rats. The first four of these cases occurred during the epidemic of 1896, and particulars with regard to them were not to hand. The fifth was the case of a Parsee lady who lived near Girgaum. 'She was,' said Bhal Chandra Krishna, 'taking out rice for cooking, and a dead rat came to the palm of her hand, and next day she got plague.' The patient was under the witness' treatment, and he believed that she acquired the disease through the injured epidermis of the hand by mere contact with the rat. But it must be remembered that, in addition to the disease being prevalent in the City, the house itself had probably been infested by plague-infected rats. It is therefore, possible that the infection was otherwise acquired than by direct contact with the dead rat in question. (b) Mr. Katrak gave us the following history with regard to the origin of a plague case which came under his observation. He said: 'A rat was found in one of the rooms. The patient, before she got the infection took the rat and threw it out, and then with plain water she scrubbed the ground with her hands. In about six or eight hours she felt a sense of chilliness, then fever began, and she went through the whole course and died.' He had heard of another case in which a porter was reported to have removed two or three dead rats from a house and, 'within five minutes' had a sense of chilliness, and subsequently developed plague. (c) A case occurred at Daman of a young woman placing her foot on a dead rat when she returned to a vacated house. That evening she was attacked by plague. (d) Dr. Godinho gave the instance of his own servant boy who developed plague eight days after playing with a dead rat. The witness believed that the boy could not have otherwise been exposed to infection. (e) Colonel McConaghy, I.M.S., informed us that a young apprentice fitter in the railway workshop at Karachi, on being ordered to remove a dead rat found in one of the drains, swung the rat about his head and played with it. Three days afterwards he was admitted into the Civil Hospital with plague. There was no plague in the neighbourhood of his house. (f) Major Dimmock, I.M.S., recited the case of a Goanese servant who removed a dead rat from a floor and burnt it. He was attacked with plague four days afterwards. (g) Dr. Simond recounts that at the commencement of the plague epidemic in Bombay a considerable number of dead rats were found one morning in the store rooms of a spinning mill. Of the 20 coolies who were ordered to remove the rats, some 10 contracted plague in the course of the next few days, while the persons who entered the store rooms without handling the rats remained free from infection. Mr. Hankin, to whom the facts were recounted by Mr. Wadia, the owner of the mill in question, gives the number of the coolies attacked as 12.

"In connection with these cases, where there are colourable grounds for supposing that contact with a plague infected rat may have been instrumental in the communication of the infection to man,there must be taken into account the infinitely more numerous instances in which the handling of dead rats has not resulted in any evil effect. As an instance of what was constantly happening we may cite here the clearing out of granary filled with dead rats. We were told by Professor Muller, in connexion with a particular granary which was cleared by him, that none of his gang of 30 coolies was attacked, in spite of the fact that no shoes were worn and no special precautions against infection were taken. We hear, also, in Dr. Planck's Report on Mahamari in Kumaun of 'certain children, all of whom have remained well, who, as a matter of pastime cooked and ate one or more of the rats,' found dead in the course of an outbreak of plague in the village of Bintola.

"We have, in short, in reviewing all the facts which have come to our knowledge, little reason to suppose that ordinary casual contact with plague-infected rats, dead or alive, is especially liable to convey plague."

(To be concluded).

EDITOR'S NOTES.

Pancreatitis.

Not every patient suffering with stomach pain, chronic jaundice and emaciation is the victim of gallstones or cancer; chronic pancreatitis may be the offender. The anatomical association of the common bile duct and the pancreatic duct suggests that a case of gallstones may be complicated at any time by a pancreatitis. Acute attacks of gastric pain with intervals of deep-seated pain are associated with inflammations of the pancreas. Nausea and vomiting and belching are common. Jaundice appears with putty stools. Emaciation and cachexia complete a picture that simulates that of a malignant growth. Tenderness in the middle of the epigastrium differentiates the pancreatic inflammation from gall bladder disease. Obstruction to the outflow of the pancreatic juice interferes with digestion, and undigested meat fibers may sometimes be found in the stools.—*North American Journal of Homœopathy*, March, 1905.

The Drinking of Methylated Spirit.

Porson, the famous Greek scholar, who drank whatever was handy, is said to have declared that the spirit from a friend's lamp was one of the most comforting beverages he had tasted. The remains of several mighty men of war, including Lord Nelson, which were placed in spirit of some kind or another for preservation during transport home are known to have arrived in a dry state, the preservative fluid having been drunk on the passage. Curators of museums have sometimes had a difficulty in keeping their specimens owing to the same depraved taste in certain attendants. The drinking of methylated spirit seems to be prevalent among the poorer classes in the Isle of Man. The House of Keys has under consideration a Bill to regulate the sale of this unseductive intoxicant. The principle was adopted, as in England, of prohibiting the sale in ordinary of non-mineralized spirit.—*Brit. Med. Journ.*, May 6, 1905.

Malaria in Formosa.

N. Minc, quoted in the *British Medical Journal* of 27th August 1904, states that the temperature of Formosa varies between 55° and

82° F. The Island is well wooded; the great rivers often overflow their banks; swamps, ponds and ditches abound, and the rice fields are constantly covered with water. Malaria is endemic in the island, and the natives contract it almost without exception. Three varieties of mosquitoes are found in the island to carry the parasite. For the protection of the Japanse soldiers in the island, gauze nets were fastened over all the windows of their living places, and the bed rooms were fumigated, and no one was allowed to be out between sunset and sunrise, unless he wore a gauze veil and gloves. During the day time no protection was attempted. The result was most striking. In three years, the death-rate from Malaria, which in the years 1897 to 1900 varied between 19 and 20 per cent., was reduced to 0·7 per cent.

Mr. Brodrick on Plague in India.

In answer to Mr. Herbert Roberts, the present Secretary of State for India made a statement the other day in the House of Commons from which we learn, with reference to the fearful mortality from that fell disease (252, 567 deaths during the months of January and February of the current year) that he had been in communication with Lord Curzon as to whether anything could be done to check the present deplorable loss of life. Mr. Brodrick added, "It had been decided to send out a scientific expedition to make a thorough investigation into the origin and cause of plague, and that the Royal Society and the Lister Institute had undertaken the direction of the inquiry, and arrangements for starting it had been made." The Committee appointed for this work consist of Surgeon General Branfoot as chairman, Sir Michael Foster, Dr. J. Rose Bradford (representing the Royal Society), Colonel David Bruce and Dr. C. J. Martin (Lister Institute), as members, and Dr. Boycott as Secretary. Dr. Martin has already arrived in India. We hear that two bacteriologists will be sent out to India in a short time, and that the laboratory work will be done in the Pasteur Institute at Kasauli.

The Charaka Club.

We gather from the *British Medical Journal* of 1st April 1905, that about seven years ago the members of the medical profession in New York interested in the literary, artistic, and historical aspects of medicine, established a medical society, which they have called the Charak Club, after the name of the author of the oldest extant work on Hindu Medicine, that Dr. William Osler, the former Professor of Medicine in Johns Hopkins University at Baltimore, and now Regius Professor of Medicine at Oxford, was a member of this club, and that on the 5th of March last the club gave a dinner to Dr. Osler at the time of his departure from the United States to England. The menu was in the form of a small pamphlet entitled *Folia of the Charaka Club*, having on its title page portraits of Charaka and "Baba" Osler side by side, with the subtitle, "A Record of Things once said (and never regretted) by Dr. William Osler." Dr. Dana, who was in the chair, showed a series of portraits illustrating the reincarnations of Osler from Charaka down through Galen, Avicenna, Nostradamus and others to Dr. Dover, buccaneer. Towards the end of the ceremony the chairman introduced Dr. Weir Mitchell as "the greatest of the American men of medicine and men of letters," and an old friend of Dr. Osler. May Professor Osler be spared to publish a work on Hindu Medicine, for Oxford will doubtless supply him with plenty of materials for such a work.

The Diagnosis of Pancreatic Diseases.

John C. Hemmeter *(Amer. Med.*, March 11th) fully considers the advances in the physiology of the pancreas and their application to the diagnosis of pancreatic disease. He believes that the effort to determine the degree to which protolysis is interfered with is rendered futile by the presence of erepsin, secreted in the intestinal juice, and which can break down proteids very rapidly after they are once attacked by gastric juice. Defective fat digestion as a gauge for pancreatic insufficiency is equally disappointing. Nevertheless, he believes that great aid can be obtained from the method of Adolph Schwidt. This is based upon the physiological fact that only gastric juice can digest connective tissue (collagen) and only pancreatic juice can digest the nuclear substance of meat fibre. Hence the presence of remnants of undigested connective tissue in the faeces indicates insufficiency or absence of gastric secretion and the presence of nuclei in the cells of meat fibres points to insufficient pancreatic secretion. Hemmeter tested the stools of two patients, one suffering from pancreatic cyst, comprising the duct of Wirsung and the other from a stenosis of the duct caused by an old pericholecystitis. In both cases the stools contained muscle fibres, showing well-preserved nuclei.—*Brit. Med. Journ.*, April 15, 1905.

Cobra Venom and Proteid Metabolism.

Dr. James Scott, in a paper recently read before the Royal Society, has called attention to the fact that although much valuable work has been done upon the physiological action of cobra venom, no observations of its effects upon the metabolism have hitherto been recorded. In the endeavour to fill up this gap in our knowledge, Dr. Scott has carried out a research upon proteid metabolism in dogs injected subcutaneously with sub-lethal, and in some cases lethal, doses of cobra venom, after having first been brought into a condition of nitrogenous equilibrium. He found that, in spite of a well-marked local reaction, practically no change was induced in the rate of proteid metabolism by the administration of the venom. There was a slight decrease in the proportion of urea nitrogen; but this was quite insignificant when compared with that produced by diphtheria toxins and various other drugs. There was also a slight rise in the proportion both of ammonia nitrogen and nitrogen in purin bodies, whilst the nitrogen in other compounds showed no constant change. The change in the P_2O_5 excreted was not constant, but in two experiments there was a slight rise. The general result of the research therefore affords evidence that the change produced in the proteid metabolism is small. Such as it is, it is in the direction of decreased elaboration of urea and increase in the proportion of nitrogen excreted as ammonia. These are indications, in Dr. Scott's opinion, of a slight toxic action on the hepatic metabolism rather than a general action on the proteid changes. He, therefore, regards his results as tending to confirm the view that the poison of cobra venom acts chiefly upon the nervous system.—*Brit. Med. Journ.*, May 6, 1905.

Plague and the Buddhist Scriptures.

INTERESTING HISTORICAL FACTS.

A correspondent writes as follows to the *Rangoon Gazette*:—In India plague was known very early, and its appearance at various times and places is mentioned in the Buddhist Scriptures and in their Commentaries. From the course it then followed there can be but little doubt that the disease mentioned was the same as what we now call plague. The Friend of Burma contains an interesting letter on this subject by a learned hpoongyi of Rangoon known as U Candima. His letter is in answer to a query by another hpoongyi, U Vugandhara and several other influential Burmans as to whether the plague is mentioned in the Pitakas and the Commentaries, what kind of sickness it is and whether it can be cured. We have verified the quotations of Candima and found them correct. No doubt many more quotations might be produced of the Commentaries and they were carefully looked through. One quotation at least is from a book which has been proved by the best scholars to have been in existence before the time of Asoka, the Emperor, that is, before the third century before Christ the Mapavagga. The others are taken from works written or compiled during the fifth century A. D.

The Pali name of the disease is "Ahivataroga," that is literally the "Snake wind disease," but we prefer the Sanskrit Etymology, with which U. Candima appears not to be acquainted "Ahiz" according to native Sanskrit lexicographers means "Striking or destroying everywhere."

THE CAUSE OF PROPAGATION.

As far back as the fifth century A. D. and very probably much earlier thé Indians and Sinhalese asserted, just as Western physicians now do, that diseases were propagated by mosquitoes and flies and that plague in particular was spread by flies and rats. We read in the Dhammapadattakatha (II 2): "When plague occurs flies first die, and then all animals, even crows." A sub-commentary on the "Mahavagga above mentioned gives in order the names of the animals they thought to be attacked before men: "When the Ahiyata pestilence arises flies die first, then rats, then fowls, pigs follow and cows, after that the servants die, then the masters of the house. Here, flies or mosquitoes come first, then the rats. It is worthy of remark that slaves and servants are said to fall victims before their masters, probably, it must be understood, from their negligence and filth. It is what doubtless is happening now, too. It may be still remembered that in India fowls and cows died from the disease. The Indians did not know of any remedy against the fell disease. Flight, they thought, was the only remedy. In "Mahavagga (L. 51) it is said that a whole family died of plague only two boys being left; in this connection the compilers add that "he who breaks through the roof of the house or through the wall (that is who flee away) may be saved." The fear of contamination was as great then as it is now, for the compilers go on to say that when the two boys that were left ran away, they met bhikkhus (Buddhist priests) but the bhikkhus terrified, drove them away, and the boys, who were not yet fifteen, cried.

CAUSE OF THE DISEASE.

From what precedes and from the statement that flies and rats were first to die, that the only remedy was in flight, that the disease was in the air,—that is caused by baneful gases and emanations from the ground-- in a word that the disease was caused by filth that people not over careful and habitually dirty, such as slaves and servants died first, it may be pretty safely concluded that the "Ahivata roga," the "Maribyadhi" and "Mari" of old Pali and Sanskrit writers was the plague.—*Indian Mirror,* April 29, 1905.

Plague in Calcutta.

Destruction of Rats.

Chamber of Commerce Views.

The Secretary of the Bengal Chamber of Commerce has written to the Secretary, Government of Bengal, Municipal Department, Darjeeling, as follows:—

The attention of the Committee of the Bengal Chamber of Commerce has been recently drawn to the good effects which followed a systematic extermination of rats as a means of prevention of plague, notably in Sydney, Australia, and, nearer home, at the East Indian Railway Company's and the Bengal Coal Company's Collieries at Giridih. The Committee understand that experimental measures in this direction are about to be instituted in Calcutta by the Special Plague Department under the direction of the Chairman of the Corporation, and they direct me to intimate that the introduction of any such measures would have their strong support. They feel, however, that in order to be of real use in preventing plague epidemics such as those from which the city has suffered, severely in times past and is now suffering, the efforts made for the extermination of rats should not only be wide-spread and cover every district in the city, but should be persistent throughout the year and not merely at the times when plague is prevalent. The Committee believe it is an admitted fact that an outbreak of plague among rats invariably precedes an outbreak of the same disease among human beings, and it therefore follows that, if rats could be more or less completely exterminated, plague epidemics would in all probability be prevented.

As the Plague Department is under the authority of the Government of Bengal, though controlled officially by the Chairman of the Corporation, I am instructed to urge in the interest both of the city and the port the necessity of Government dealing with this matter in a comprehensive and determined manner. It appears to the Committee that public funds could not be better employed than in providing the necessary organisation and appliances for the wholesale destruction of rats in the various quarters of the city, and the Committee trust that the subject will receive the urgent and serious attention of Government.

I am instructed to enclose copy of a Circular issued by the Agent of the East Indian Railway which details the measures which have been successfully employed at the Giridih Collieries, and the Committee agree that of all the various schemes which have been put into operation for the eradication of plague the most successful would appear to be those which have for their object the extermination of rats.

The following is the enclosure (copy of circular referred to) :—

PRECAUTION AGAINST PLAGUE.

Of the various schemes that have been put into the operation for the eradication of plague the most successful appears to be that which has for its object the extermination of rats, and the introduction of this process at the Company's Collieries. Giridih having been attended with the most gratifying results, I desire that it may be extended elsewhere as an experimented measure at some selected station in each district where plague is prevalent.

The following is a summary of the measures adopted at Giridih and are those which should be adopted as far as local conditions allow :—

1. The rats are brought in the cages in which they are caught twice a day, morning and evening.

2. The cages containing the rats are then completely immersed in water and perchloride of mercury kept in a wooden cask. This drowns the rats and disinfects the cages. This operation is done near a large fire—a boiler furnace for preference being always at hand on the collieries.

3. Rough wooden boxes are provided of sufficient size to contain up to 25 rats. One of these boxes is placed on a shovel in front of the fire. A little jute is placed in the box, for the fleas to nestle on, as it has been found that the fleas are more difficult to drown than the rats are and as they leave the cold body of the drowned rat and to prevent them hopping on to the persons handling the cages, jute is placed there to attract them.

4. The cages are then taken out of the perchloride solution. The door at one end of the cage is opened, and the rats dropped into the wooden box, and with as little delay as possible the box containing the dead rats and fleas is thrown into the fire.

5. The cage is then baited and handed over to be used again.

6. Handling of the rats is strictly prohibited.

The main precaution to be observed is to ensure that both rats and their fleas shall be promptly destroyed on their submersion in the perchloride of mercury bath and in carrying out the proposed experiments, the local District Traffic Officers and others concerned should act in co-operation with the District Medical Officers.

The Controller of Stores will supply the necessary rat traps.—*Bengalee, Friday* April 28, 1905.

Oil in Tobacco.

We have received from the Scottish Anti-tobacco Society a communication in which it is suggested by Mr. Rutherford Hill that the irritating effects of tobacco smoke may be largely due to the combustion of oil. Tobacco, of course, contains a natural oil but for the purpose of manufacture the practice of adding oil is on the increase, as was shown in the last report of the principal chemist of the Government laboratory. The oil used is stated to be best Florence oil, which on imperfect combustion would yield the intensely acrid and irritating vapour, acrolein. While we quite agree that the formation of acrolein in this way would be a contributory factor to the irritating property of tobacco smoke, yet it must be borne in mind that the products of the destructive distillation of the tobacco leaf, even free from added oil, contain a great number of substances of a similarly acrid character. Such, for instance, are pyridine, furfurai, butyric and ualeric acid, ammonia compounds, and so forth. The addition of glycerine which is also practised would again give rise to the formation of acrolein, while glucose would give irritating products on partial combustion. The proportion of added oil, glycerine, or glucose is, however, in most cases small and probably insignificant having regard to the proportion of tobacco smoked. We object, however, to the principle in general of adding any foreign substance whatever to tobacco and the less tampering there is with the leaf the better and the less injurious is it likely to be. But it seems to us that we do not require to resort to an enumeration of the various constituents, good or bad, of tobacco to prove that smoking by juveniles is a pernicious practice. Any movement to suppress the habit amongst children has our complete approval.—*Lancet,* April 22, 1905.

The Alimentary Value of Sugar in Tuberculosis.

In a contribution to the Société de Thérapeutique René Layfer discusses the value of sugar in the dietary of tuberculous patients. Sugar being easy to take and to assimilate and having a high calorific value might, it was thought, replace a part of the albuminoids in the diet without lowering the weight of the patient. Two cases were taken in which the diet consisted of 300 grammes of raw meat and two grammes of total albumin per kilogramme. The meat was reduced to 150 grammes, equivalent to 1·2 grammes of albumin per kilogramme. At the end of 12 days of this fare increase of weight had ceased in one case and a loss in weight of 300 grammes had occurred in the other. Each patient was then supplied with 70 grammes of sugar in addition and a gain in weight was experienced. In a general way tuberculous patients tolerate for a long time from 50 to 90 grammes of sugar daily. Thus a gain in weight of from 20 to 90 grammes per day was obtained by simply adding to the patient's ordinary diet from six to ten pieces of sugar daily, administered in a little milk after each meal. But sugar was found to be particularly valuable as an addition to a strict milk diet, yielding quite a perceptible increase in weight, as shown by a typical case. A patient who through a loathing of food was taking only from two to two and a half litres of milk a day and had become quite emaciated regained his usual weight in 45 days by adding to the milk diet 200 grammes of sugar daily. It is particularly with milk that large quantities of sugar are tolerated, either dissolved in the milk or dissolved in water and taken after each dose of milk. The writer mentions six other cases in which the diet consisted of three litres of milk a day and from 50 to 200 grammes of sugar; in each case a gain in weight varying from 15 to 75 grammes a day was experienced and the diet was tolerated by the patient.—*Lancet*, April 29, 1905.

The Mortality from Plague in India.

In the Lancet of March 25th p. 807, we commented upon the appalling mortality from plague, a disease which is at present scourging India, and gave it as our opinion that the urgency of the situation has not as yet been fully recognised. At the Comitia of the Royal College of Physicians of London held on April 17th the following motion was proposed by Dr. Norman Moore, seconded by Sir Dyce Duckworth, and supported by Dr. J. F. Payne—

> That in view of the constantly increasing mortality from plague in India since 1896 and of the recorded mortality of 252,000 in January and February of the present year a committee be appointed to report to the College on the desirability of the College addressing His Majesty's Government on the subject.

The motion was carried and the nomination of the members of the committee was left in the hands of the President. It is true that the prevention of plague in an oriental country presents great difficulties. The poorer classes of India have but little reserve of strength, caste prejudice and religious difficulties stand in the way of such hygienic measures as notification, preventive inoculation, and proper sanitation, while the unfortunate infection of a batch of plague serum with the germs of tetanus which occurred but recently has naturally caused a dislike to this method of prevention. Moreover, the tendency of the oriental races when afflicted by illness is not merely to take no measures for treatment but also to refrain from making any mental effort to get well. This they would consider impious and it is not so very long ago since we in this country viewed cholera in the same way as a divine punishment, so that many persons considered that to take hygienic measures was fighting against God. We have now learned better and have come to agree with the opinion of Salvian concerning the conquest of Rome by the Goths, that our evils are due to our vices. It is not nowadays a characteristic of the inhabitants of these islands to sit with folded hands and not to do their utmost to combat difficulties. We trust that the committee to be appointed will strongly recommend the Royal College of Physicians of London to make urgent representations to the Government and to assist our rulers in every possible way to do their utmost to remove what we must stigmatise as a blot upon our administration of the chief part of our eastern empire.—*Lancet*, April 29, 1905.

CLINICAL RECORD.

Indian.

A CASE OF ERYSIPELAS.

By Dr. Hem Chandra Ray Chaudhuri, L.M S.

T.——————, a child of about two years had fever and convulsion on the 12th March, 1905. He had a pustular eruption in the left leg near the shin of the tibia and the portion of the leg appeared much inflamed. Redness was limited to a circumscribed spot round the pustule. The convulsions were frequent, sometimes hardly without any interval. *Bell.* 30 centesimal globules were administered. Belladonna having failed, *Cicuta* 3 decimal globules were given. The convulsions gradually ceased.

13th March. He had 101 F. in the morning. *Aco.* 1 dec. globules. In the evening the temperature rose to 103. It could then be known that the inflammation was spreading up and down the leg, with swelling and tension.

14th March. Temperature in the morning 101. *Bell.* 6 dec. globules. The evening temperature was 103.

15th March. The erysipelatous inflammation was spreading up and down. It had reached above the knee and down the ankle. By careful observation, minute pustules, each about the size of a pin's head, could be detected. They were confined to the leg.

Temperature in the morning 100. *Rhus tox* 30 cent. globules. In the evening the fever rose to 101.

16th March. The minute pustular eruptions were disappearing. The leg was less inflamed than before. From the kneejoint the erysipelatous inflammation assumed the cutaneous character leaving aside the pustular nature. The inflammation was extending upward and reached almost the buttocks. The morning temperature was 99. *Rhus tox* 30 cent. globules were continued. Evening temperature 103.

17th March. The erysipelas invaded a portion of the buttocks, the leg was evidently better. Temperature in the morning 101. *Merc. sol.* 12 dec. globules. Evening temperature 101.

18th March. The erysipelatous inflammation did not extend any further up or down. The effect of Mercurius in obstructing the spread of the inflammation was most conspicuous. The morning temperature was 99. *Merc. sol.* 12 dec. globules. The evening temperature was also 99.

19th March. The child was evidently doing well. Temperature in the morning 98·4. *Merc. sol.* 12 dec. globules. The skin from the leg and thigh were peeling off.

20th March. A large covering of the pustule came off. *Merc. sol.* 12 dec. globules. The medicine was continued for another three or four days and was then discontinued.

Remarks.

The case of erysipelas is instructive for various reasons. The change of character from the pustular to the cutaneous variety is a marked feature of the case. *Rhus tox* could only change its original nature but could not prevent its spread. *Merc. sol.* instantly prevented its progress. The last medicine has rarely been used in erysipelas. This case has proved the efficacy of the medicine in the disease. It may be observed that the parents had no syphilitic history among themselves and it was wanting in their few previous generations. In this view of the fact, the efficacy of the medicine in non-syphilitic erysipelas has produced so far successful result.

Foreign.

CATARRH OF THE BLADDER.

By Eli G. Jones, M. D.

Several years ago I was called to the southern part of this State to see a middle aged man suffering with catarrh of the bladder. The physician whom I met in consultation had used many remedies to try and relieve the distress of the patient. He finally had to use the catheter to draw off the water every few hours, and the pain at such times was so great that the neighbours could hear him scream with the pain. The discharge from the bladder was mixed with blood and mucus, with a *burning* pain extending down from the bladder to the end of the penis. I told him I thought I could help him, and in consultation with his physician gave him my idea of the treatment of the case. To relieve the most pressing symptoms I prescribed *Solidago virga-aurea* ix, third dilution, five drops once in two hours; in twenty-four hours he could pass water without the catheter. For the constant discharge from the bladder I gave him Tr. *Chimaphila umb θ*, ten drops once in three hours. In cases of this kind it is well to remember that the greater the amount of *catarrhal* discharge the more certain the indications for the *Chimaphila.* As his nervous system was pretty well unstrung with the pain, I gave him *Kali phos.* 3x–15 grains in a goblet of water, teaspoonful once an hour, till his nerves were calmer. This plan of treatment was strictly followed out until the patient was discharged cured.

I have used the *Solidago* (golden rod) in cases where it is *indicated* and it is one of our *best* remedies.—*Homœopathic Recorder,* March 15, 1905.

SOME CASES OF RHEUMATISM.

By Dr. Mossa, Stuttgart.

Translated for the Homœopathic Recorder from *Allg. Hom. Zeit.*

GNAPHALIUM.

A servant girl, twenty-nine years of age, had suffered much ever since her ninth year from rheumatism. The pain roved about in all the joints, sometimes in the fingers which are red and swollen, then again in the shoulders or the loins. She cannot sleep at night. The joints are stiff and sore and hard to move. The mother-tincture of *Gnaphalium*, ten drops a week, continued for two months, brought remarkable relief. In the course of two months she was freed from all pains, except a slight aching in the back (Cartier). *Gnaphalium* is generally most useful in non-inflammatory rheumatism, and still more in nervous rheumatism and in gouty myalgia.

KALMIA LATIFOLIA.

A school boy, ten years of age, had an attack of rheumatic fever, lasting thirteen days. Acute pains in the shoulder-joints and in the upper arm, jumping from one side to the other; penetrating lancinations in the cardiac region, worse at night; thirst for large quantities of water; great restlessness. Pains darting through the intercostal muscles in the left side, worse while breathing; the tongue, red in the middle, with a red triangular spot on the tip; the joints neither reddened nor swollen. Temperature higher, respiration 48–60; the cardiac pains worst while lying down. The boy had had a similar attack the year before, which had been less painful, indeed, but which under allopathic treatment had lasted six weeks and a half, and had left behind a deficiency of the valves. On giving him *Kalmia latifolia,* the pain disappeared in two days.

MEDORRHIN.

This remedy is according to J. H. Allen most effective in rheumatism after gonorrhœa, especially when the small joints are affected. The gonorrhœa in such cases has often been quickly repressed. Whenever in rheumatism the joints, especially those of the fingers and toes, or the knee joint, are swollen we should think of *Medorrhin*; for there is usually a specific infection present. This remedy has cured gouty exudations, extending to the whole of the body. The patients in such cases have hardly any use of the joints affected (similarly as *Rhus* in muscular rheumatism). It is worse in cold weather, better when it is warm. Winter is always the worst season with such patients, especially when it is cold and moist. They complain of heaviness of the limbs while walking, as if the limbs would refuse their service.

In *Arthritis deformans*, this crux for patients and physicians, Dr. Bonino has found the best results from a weekly alternation of *Causticum* and *Thuja*. In pronounced gout *Urtica urens* has been most serviceable.—*Homœopathic Recorder*, January 15, 1905.

PROLAPSUS OF VAGINA CURED BY THUJA.

By Dr. W. H. Wheeler.

About five months ago I was consulted in regard to a case of prolapsus of the vagina in a woman seventy-seven years old and told that one of the best homoeopathic and Hahnemannian physicians in the country had advised a surgical operation, saying that she knew of no internal remedy which would be likely to help the case. The prolapsus had already existed for at least a year and was steadily getting more and more troublesome, together with increasing weakness and marked irritability in one who naturally was one of the kindest of women. But having an intense antipathy to needless surgery, and counting surgery always needless until careful study of all possible clews has proved beyond a doubt that no other remedy is possible, I asked the privilege of going over the case to see if somewhere in our Materia Medica a vaginal tonic could not be found which would touch the case.

As so often happens in such cases, I soon discovered that in the case as it now stood there were no clews; but a very careful study of the lady's past life and family history brought out the fact that she had often been helped for a while by *Pulsatilla* and *Silicea*, though neither of these seemed to have any real control over the prolapsus. But *Thuja* is complementary to both of these: in fact, is probably *the true chronic of Pulsatilla three times out of four*, so I devoted myself to a study of some of the more rare and unusual symptoms of *Thuja*, and sending my patient *by mail* a list of seventy-nine of these I soon got conclusive proof that all through her past life a thuja vein had run, for she had had quite a number of its rarest and most distinctive symptoms. So I advised a trial dose of *Thuja* 1000 to see if medicine could do anything for the case. This was Oct. 15, 1904. As is so often the case with *Thuja* when it does its finest curative work, the initial aggravation after taking this one dose was very severe, actually putting the dear lady to bed. But then came the relief. She began to feel stronger, and the prolapsus gradually became less and less and soon wholly ceased. Her irritability also became a thing of the past, and for four whole months she felt better than she had for years, in spite of slowly advancing old age and a very trying winter climate. At the end of these four months some of the symptoms and a renewed tendency to prolapsus showed itself, and I have just advised a second dose of *Thuja;* but that in a woman seventy-seven *Thuja* should have given such marked relief for four solid months certainly shows that it has a marked affinity for prolapsus vaginæ in so-called *Pulsatilla* women, which is well worth keeping in mind.

To show how marked and many-sided the improvement has been I will quote a part of the lady's last letter: she writes, "Till the last few days I have not had to lie down as often as I used to, have had but little backache, have been largely free from coughs which used to trouble me a good deal and have had only one attack of grippe this winter, and that much milder than usual; my knees and ankles do not feel cold as they used to do before [one of her most persistent symptoms formerly]. I do not get tired when working, as I used to do, and am able to do a good many hours' work each day." To all of which her daughter adds, "that she has also been her old, sweet self once more, without the strange irritability and temper fits which were formerly beginning to trouble her so much, and make it so hard to keep a servant girl." Evidently *Thuja* has helped, and is going to help still more; but this is enough to set many an interested reader to observing for himself. Think of it as one of the commonest chronics of *Puls.*, ALWAYS EXPECT A RATHER SEVERE AGGRAVATION EVERY TIME YOU USE IT, and tell your patient to expect it, and except in very urgent cases like this do not begin higher than the 30th for chronic troubles, and I am sure you will soon learn to love it almost as much as I do, for it has saved some of my dearest friends and is saving others from sufferings almost as old as Noah's ark; for though it works very slow it works wondrous deep. Of course, the 30th is slower than the 1000th would be, but the curative aggravation is also less. In fact, one young doctor who needed it, turning up her nose at 30ths, took the c.m. and was almost frantic, so sharp was her aggravation. But if you wish to get really fine results be patient and don't repeat until an unmistakably serious relapse *of at least five days' duration* calls for it, for some of its later curative action is even more cheering than the relief and uplift which it gives when first taken, two to four months seeming to be the time that a single dose of the thirtieth can run WITH STEADY IMPROVEMENT and only a lot of minor annoyances to show that the work is not mere palliation but cure, melancholia slowly changing to mere neurasthenia, insanity slowly changing to mere restlessness, despair to mere intermittent blues, etc.

And now just one more hint that may save some one much worry. It has wonderful power over dropsical swelling of the feet of several weeks' duration in some mild *Pulsatilla* women, when the dropsy is probably due to mere weakness rather than heart disease in its graver forms, though over true heart disease it seems to have great power in some cases. But dropsy due to weakness it sometimes cures like magic. I do not find this symptom reported in our repertories; but Allen's Cyclopædia (Symptom 2714) tells us that in the case of one prover it persisted for ten days.—*Homœopathic Recorder*, March 15, 1905.

Gleanings from Contemporary Literature.

THERMOTAXIS AND NERVOUS INFLUENCES IN THE PRODUCTION OF FEVER.

By Theo. J. Jacquemin, M.D., Union Hill, N. J.

A most remarkable instance of a self-adopting mechanism is the faculty possessed by our organism to maintain average temperature under all circumstances of external heat and cold, of torrid and arctic zones, of summer and winter, of sunshine and darkness.

The sensations of heat and cold are no measure of the bodily temperature, not more so than the number of pulsations or respirations can give a correct idea of the body's heat: this can only be given by the thermometer, the introduction of which by Wunderlich, has constituted one of the greatest achievements in clinical medicine.

The mechanism by which the body's temperature is kept uniform, is a co-operation of a number of factors. It is an equation of which the two sides are the amount of heat produced in the organism and the amount of heat dissipated.

In cold weather, warm clothing, fires and contraction of the superficial blood vessels limit the loss of heat; there is also *an increased production of heat* in the way of physical exertion, and through more active circulation in all the internal organs, especially brain and liver, their greater functional activity being attended with a large amount of heat by metabolic combustion. When it comes to be an *adaptation to great solar heat*, it is mostly in the way of regulating the heat lost. The vessels of the skin are dilated and muscular elements relaxed; perspiration flows and the evaporation of the sweat consumes constantly heat. Brain functions and digestion run low and fatty substances, so readily shared in during cold weather, partaken of most sparingly. This conservative adaptation is controlled by the central nervous system.

The vasomotor nervous mechanism is an integral part of this nervous control of the body temperature. But physiologic experimentation as well as clinical evidence go to show that there are still *higher* and more *commanding* centres in the nervous system than those inducing the vasomotor effects and to which we shall refer later on.

The internal heat of the human body is from 98° to 99° Fahrenheit, and the *healthy range* in different individuals or in the same individual at various periods of life, in various circumstances of exercise and repose, sleeping and walking, is not more than a degree and a half below or above the mean.

This statement includes the fact that our organism is not regulated in such absolute way, as to maintain always a "*constant temperature,*" inasmuch as it is found that in a person of normal condition, living in a room of unchangeable temperature, if a thermometer be placed in an internal organ, it indicates regular oscillations of one degree and 8-10ths in the twenty-four hours; but our organism is *capable of automatically preventing* variations of more than 9-10ths of a degree above or below the standard temperature, which we call practically constant. Our body is a thermostat more flexible, it is true, but far more sensitive and complicated than those constructed for our laboratories and other industrial purposes.

An elevation of the internal temperature moderates combustion; and a lowering of our bodily heat has the effect of starting up the furnace. But what our thermostats in industrial lines are not capable of doing our body does: when it gets heated, and cannot moderate the source of the heat, it increases the amount of heat that is lost; and when it is cooled off, it checks the waste at the same time as the combustion is made more active. Furthermore, this double method of regulating receipt and expenditure of caloric, becomes active when the body is merely threatened with a disturbing influence in consequence of a change of temperature taking place in the ambient medium, which might have a tendency of making the organism hot or cold. The *thermo regulation* or *thermotaxis* is, therefore, both *curative* and *prophylactic.*

The temperature of the exterior air brings to our cutaneous nerves a sensation inviting us to cover or uncover ourselves, but especially determines unconscious reflexes in the nature of automatic body defences. Amongst those reflexes some restrain or actuate heat production by increased metabolism or lowering of vital processes, as the case may be, others bring into action or put a curb on dispersion of heat.

External cold increases production of Co^2 and urea, intense cold causes shivering and muscular tremor, both causing internal combustion and more internal heat: On the other hand, external cold brings about a spasm of the superficial capillaries, less blood is cooled off at the skin surface and cutaneous evaporation is suppressed. These two varieties of reflex actions answer admirably the purpose of protecting the organism against the deleterious influence of *external cold.*

Unfortunately, the reflexes are less powerful to protect us against external heat. When the exterior air gets warm, interstitial combustion becomes less active, the superficial blood vessels become dilated, circulation and respiration become accelerated, diaphoresis is established and the blood carried to the surface in greater quantities is more quickly cooled by the contact with the air. More particularly, the blood loses heat by pulmonary and cutaneous evaporation, and this loss is sufficient to prevent the body from getting heated, even if the exterior air is warmer than the body; but, *let the air be warm and moist*, the evaporation cannot take place and the result of the conflict between heat and the heat-regulating powers is reversed: increased circulation and respiration still further heat the blood, and, unfortunately too often go to illustrate the shortcomings of thermotaxis in that part of its mechanism that is to protect us against external heat. The external heat under the stated circumstances becomes internal heat, and this brings us up to the study of the defences set by the organism for the protection of normal temperature against *internal cold and internal heat.*

As far as both of these agencies are concerned, the reflexes have nothing whatever to do with defending us against them.

Professor Richet, of the Paris medical faculty, by most thoroughgoing physiological experiments, has demonstrated that the central temperature of the body must fall as low as 93° F. before chills and muscular tremor are induced by central nervous agency. Carbonic acid increases in quantity and the temperature rises muscular contraction coming to the aid of increased metabolic combustion. Under these circumstances, the cutting of the spinal cord suppresses the chill and tremor in the trunk and the extremities, while it persists in the face: *hence, the central cold alone* is responsible for the chill which is essentially induced by the heat-producing centres of the encephalon. These centres are located in the corpus strictum and the pons varolii. Not only does clinical medicine corroborate these findings by Professor Richet, but they are substantiated by the results obtained by other investigators like Hale White, Jacobson and Goodhart.

Internal heat brings into play the central mechanism of heat-dissipation or thermolysis: Warm vapor or water baths, warm air at the exact temperature of the body, but saturated with humidity produce a rapid elevation of internal and central heat, and as a consequence, the heart is accelerated, more blood is brought to the surface of the pulmonary vesicles and to the integuments, the respiration becomes more active and we have a phenomenon properly called "thermic dyspnea." This dyspnea is due to the heating of the thermolytic centres and immediately an abundant diaphoresis sets in as a consequence of the excitation by the warmer blood of the respective centres situated in the cord and the medulla oblongata.

Now, then, besides a reflex production and dissipation of heat, we have to deal with a thermogenesis and thermolysis of central nervous origin. This, however, is not all: Physiologists of to-day connect these centres with a third one, the heat-regulating or thermostatic centre, which has the all-important function of the controlling heat-production, and heat-loss, in such manner that the bodily temperature may remain equable under normal conditions. This centre is located by the authorities in the cortex of the encephalon.

Thus far we have seen that reflexes protect us very well against external cold, while they are very inadequate as far as peripheric heat stimulation is concerned; we find on the other hand, that the central temperature must be lowered five degrees F. before the thermogenetic centre induces a warming chill, while an elevation of internal heat by vapor bath, for instance, is sufficient to induce a cooling perspiration as soon as it reaches 3·5 of a degree F. average temperature.

It would be erroneous to admit that only those influences which we have quoted now play a role in thermic functions of the organism. There are to be considered all those agencies, chemical and bio-chemical, which, circulating in the blood, affect variously the thermic centres.

The marvellous mechanism of heat regulation shares, like all parts of our wonderful organism in the fragilities to which human flesh is heir.

There are so many ways, functional and organic, by which the automatic centres of heat-production and dissipation are influenced, reflex modifications are induced by so numerous changes in our surroundings, ranging from unusual dry and moist cold to extreme dry and moist heat; there are so many chemical agents, toxins, as well as alkaloids, which by their admixture to the blood circulating through the nervous centres leave their functional impress, that there cannot be any wondering at the statement that the nervous mechanism to which we owe our average body temperature, constantly the recipient of noxious influences, the constant and successful warding off which is the price for undisturbed health and well-being of the individual.

Such being the case, is it not evident that we may trace a considerable part of the illness and mortality of the globe to a marked and conspicuous failure of the thermotaxic centre its adaptation to external and internal, physical and chemical, circumstances?

It is with good reason that the poet asks,

"But errs not nature from its gracious ends,
From burning suns when livid death descends?"

Undoubtedly the heat-stroke is the direct result of an upset or a disintegration of the thermotaxic centre. Either the disorder is shown in sudden depression of the heart's action, among soldiers marching in the sun, or the effect of atmospheric heat and humidity is a state of venous engorgement, thermic dyspnea, indicating a profound vasomotor paralysis, ending in death by asphyxia or finally, the heat stroke leads to an attack of thermic fever coming on a few hours after the exposure, having a prodormal stage of malaise and a rise of bodily heat to 106° or even 110° F. with the heart and lungs embarrassed, profound disturbance of the brain and a fatal termination with venous engorgement and asphyxia. All these forms point to a profound disturbance of the nerve centres. Furthermore, we find in tropical fevers of all kinds, the greatest indication of failure or imperfection of man's heat-regulating centres to his surroundings.

Throughout the whole inter-tropical zone, fever in its various forms stands for almost as much sickness and mortality as all diseases put together.

On the other hand, exposure to harsh and unusual degrees of humidity and cold, especially in the enfeebled and ill-clad populations, produce pneumonia and rheumatic fever, other errors of the thermotaxic mechanism, because its weakened centre is too readily overcome by the thermic reaction which the cold induces.

After those general considerations of extreme heat and cold in their onslaught on the heat-regulating centre, let us develop some minor points of interest and practical value in clinical medicine: In diverse pathological conditions, like influenza, a morbid poison frequently prevents dissipation of heat by diaphoresis, in spite of high central and peripheric temperature and many degrees above the 3·5° F. which induce physiological diaphoresis, as we have seen before.

In the same person, who, under normal conditions, perspires freely in a region of the skin, the temperature of which is 96° F., while that of the centre is 98·4-5° F., we may find in the course of an attack of influenza the skin remaining dry with a temperature varying between 99 and 102, that of the rectum being from 100 to 103°. An antagonistic poison to the toxin of influenza, for instance, *antipyrine* or *pilocarpine*, will upset this disagreeable condition and establish diaphoresis with corresponding reduction of external and central temperature.

It is a well-known fact that automatic heat regulation is more powerful in preventing the disturbance of temperature than in bringing about conditions.

Nature, in her wisdom, here once more tries to teach us that prevention is far more valuable than cure, and that under all circumstances, the wise guidance she is anxious to give us at every step emphasizes the necessity to live up to certain laws rather than restore time and again natural conditions, when they have once been disturbed.

The nerve centres to which this great function belongs are able to resist for a long time the continuous action of disturbing influences, their vigilance and activity are unceasingly on the alert until a moment arrives when they are exhausted by the contest and practically routed.

Does not this explain to our utmost satisfaction why it is that in such individual the incubation stage of some infectious or contagious disease is short, in such other individual protracted? It is a question of nerve-power of lesser or greater resistance depending on the integrity of the nerve centres that control our body's temperature.

In cases of starvation, the temperature remains almost normal till the very last day, when it quickly falls 4° F., and at the moment of death from inanition, it takes a sudden tumble of 23 to 24° F.

Inversely, when animals are placed in an overheated medium, their temperature *after reaching* 104-106° F., remains at this point for a long time before going beyond, and all of a sudden, the resistance in the nerve centres is overcome, the temperature rises to 113° F. and the animal dies through the physical phenomenon of albumen coagulation. As far as the length of time is concerned, during which a successful struggle against the causes of hyperthermia takes place *much depends on the energy possessed by the individual nervous centre.*

Therefore, in weak and enfeebled persons, in those that are thoroughly exhausted or suffer from chronic affections or acute diseases of long duration, in convalescents new or recurrent attacks of fever are seen to occur in consequence of influences, which in a healthy subject, might possibly excite increased calorification, but certainly would not succeed in raising the temperature of the body. In this manner we are able to explain the singular fact that at the period of decline of *typhoid fever*, the same cause will, as the case may be, induce sometimes a *syncope*, other times, a *febrile manifestation*. It is for this reason also that in the course of convalescence, the elevation of temperature which occurs each time the patient rises, gradually becomes less intense in proportion as he is enabled to assimilate more food, eat more and thus gain more and more physical strength.

In the very same way, when a person first engages in one of the various kinds of public social functions or sport, the fever determined by nervousness, fear, or by muscular exertion decreases with growing self-reliance, self-confidence or with growing strength from perfect and continued training: A physiological equation is brought about and the elevation of temperature which was the effect of inequality between the nerve force supply of thermotaxic centres, and the demands made on those centres by unusual exertion or unusual mental excitement, will not be noticed any further. In like manner is explained the circumstance why a strong man only presents feeble oscillations of temperature, the nocturnal decline and the diurnal elevation both being but little marked, so that his thermic line is stretched and closely approaches the straight line, while that of the weak and feeble man shows marked oscillations. But give to the latter some drug which is able to instil a little nervous energy into his system, such as quinine in moderate quantity, and his thermic line will become stretched.

All these and many similar facts have brought forth the nervous theory of fever which was formulated some ten years ago by **Professor Hale White, of London.**

This theory supposes that the rise of temperature may be caused by direct interference with the thermic centre or by circulating toxins or by peripheric stimulation reflecting on the heat-producing, heat-dissipating, and heat-controlling centres.

With regard to peripheral impressions, we know that the passage of a kidney stone or gall stone often causes a rise of temperature, and certainly, during some cases of confinement, we all could find a slight elevation of temperature. Every surgeon knows about the fever heat that often follows fracture of the tibia, humerus or femur. Concerning fever-producing substances circulating in the blood, we know that atropine and caffeine will send up the temperature if given in full doses and it is more than likely that in all specific fevers it is the toxin that causes the increase of bodily heat by its influence on the heat-producing and heat-controlling centres. Finally, we have the temperatures which are directly due to disorder of the heat mechanism, and this is the most interesting group helping to form the very foundation of the *modern theory of pyrexia*: There is considerable experimental evidence that damage to the *cerebrum* will cause *a rise* of *temperature*; it is also certain that one part of the central nervous system presides over loss of heat, while a third centre balances the two, so the temperature remains practically constant within narrow limits. It is extremely probable that the chief centres for thermogenesis or heat-production are the "corpora striatea" and "pons varolii," because damage to this part of the cerebrum produces a considerable rise of temperature. The regulating centres are located in the cortex. Experiment and clinical observations lead to this admission.

If one corpus striatum only is damaged the temperature will be higher on the opposite side of the body. So in hemiplegia we find the temperature raised in the axilla of the paralyzed side.

In the case of cerebral hemorrhage, there may at first be a considerable fall of temperature owing to the severity of the shock, but as the effects of this pass off, the rise of temperature due to damage of the corpus striatum or pons varolii shows itself.

In the case of sudden damage to the corpus striatum, the rise of temperature takes place quickly and within twenty-four hours attains its maximum. It then slowly falls, till in a few days, the normal point is reached again; thence it reaches a subnormal degree for a few days and returns gradually to the normal body heat.

Clinical medicine affords proofs that injury to the cerebral cortex causes rise or can cause rise of temperature.

In meningitis, as is well known, the temperature may be very irregular; often it runs very high, often it drops very low; in a few hours' time we may notice a change from 97½ to 108° F.: this is easily explicable if we believe that the rise of heat in this disease is in part, at least, due to the excitation of the cortex by the inflamed meningial coverings impairing the regulating function that ought to control the heat-producing mechanism of the corpus striatum and the heat dissipation in cord and medulla oblongata. Next we will consider epilepsy, chorea, and hysteria, three functional diseases of the cortex and brain substance.

During a fit of epilepsy, the temperature is apt to rise several degrees; in the condition of status epilepticus, the temperature may run as high as 107° F.

In severe chorea, temperature is often raised several degrees; the fever of hysteria is a common occurrence.

To further illustrate the role of nervous influences in the production of fever, let us briefly call to mind some clinical facts which are undoubtedly familiar to all of you:

Did it never strike you that fever patients, when admitted to the hospital, in four cases out of five, present a temperature higher by a degree or more than it was before admission, and than is found on the next or the following days? You also certainly noticed that visits to fever patients have the effect to immediately raise the temperature. It is also generally known that unseasonable ingestion of food in the course of continuous fever increases its intensity. Consumptives returning from a promenade, even if quite a short walk only, often have a temperature three degrees higher than when they started out.

Lastly, emotional and intellectual perturbations are sufficient to cause a recurrence or a new manifestation of fever. Take your patient recently admitted to the hospital, and, all things considered, the analysis of the case goes to show that mental, emotional and volitional perturbations as well as bodily weariness have the principal share in the production of this attack of fever.

Emotional nervous fatigue caused by the regular visiting days and principally induced by conversation are the determining causes of many attacks of fever.

There are cases to which we have alluded already and where there is no other explanation of the higher temperature than muscular effort, as in the initial stage of convalescence after typhoid fever—when often the slightest attention the patient pays to his attire or his toilet, is immediately followed by a marked rise of temperature,—the heat-regulating centres being still in a state of extreme weakness and unable to check the furnace started by slight muscular exertion.

As conclusion I should state, that if a strong nervous system is able to protect the organism against thermic variations by keeping the integrity of the heat-producing and controlling centres, nervous weakness renders the agents of protection less vigilant and less efficacious. Under conditions of nervous weakness, effects which escape detection in a normal state are observed with a magnifying glass, as it were—forces the very existence of which has been doubted, may then be seen openly at work. A weakened nervous system is indeed a particularly sensitive reagent for fever-producing agencies, and it is perhaps with good reasons that many diseases like heat-stroke, rheumatic fever, typhoid fever, pneumonia, intermittent and remittent malaria are called "nervous fevers," because they may be regarded as the outcome of errings and deviations of weakened nervous centres. A strong nervous system is able to protect the body against thermic variations and consequently disturbed metabolism, while nervous debility surrenders the organism to its numerous and invisible enemies.—*Medical Times*, Feb. 1906.

MYASTHENIA GRAVIS.

By James Taylor, M.D., F.R.C.P.,

Two Typical Cases.

The first patient is a girl of 25, under Dr. Beevor's care, who until May last was in perfectly good health. She then found that she had some difficulty in speaking, and that after she had talked for a little while her articulation became indistinct, and much more difficult than it usually was. This peculiarity was strikingly iillustrated when she tried to read aloud, for after even a few minutes of such reading she became not only inarticulate but actually voiceless. This weakness persisted, and to it was presently added a certain degree of difficulty in using the hands, especially for fine movements, such as picking up a pin, or buttoning her dress. The arms, apparently, at this time were fairly strong, but they also became weak, so that she had difficulty in doing her hair in the morning. The weakness of the hands increased, so that in doing needlework, at which she worked for her livelihood, she constantly found that she was unable to thrust the needle through the piece of cloth which she was sewing, or unable to extract it from the cloth. The lower limbs also began to show a certain weakness, so that she staggered when she walked, and could not walk so far as she used to. She also noticed that she occasionally saw double, and she had a heavy feeling about the eyelids, although it was never noticed that there was any actual drooping of them. Her condition now is one of very considerable weakness in the lower limbs, weakness in the upper limbs, slight difficulty in carrying out extreme movements of the eyes, and marked impairment of articulation, becoming much more obvious after she has spoken for a few minutes. There is no wasting, no visceral disease can be discovered, there is little, if any, difficulty in swallowing, and all the other reflexes are normal.

The second case is that of a patient whom some of you may have seen before; a man who has had, for nearly ten years, a varying degree of weakness in the arms and legs and also in the ocular movements. Apparently the weakness in this case displayed itself first in the ocular muscles. Then the arms became very easily tired, so that he became quite unable to work with his hands at a higher level than his head, and as he was a house-painter, this soon became a very real and practical inconvenience. He also had very great difficulty with the lower limbs, so that, for example, in going along the street he was only just able to make his way from one lamp-post to another, and when he gained the support of one lamp-post, he had to stop in order that he might recover sufficient muscular force and energy to carry him to the next lamp-post. During the past ten years these different weaknesses have been variable. Sometimes the weakness of the legs was very great, sometimes it was less; and at the present time he is able to get about with a fair amount of comfort. His arms he is still unable to use freely; he has almost complete paralysis of all the ocular movements, and there is very marked double ptosis. He has little if any difficulty in articulating, but he has occasionally suffered from difficulty in swallowing. He has in certain muscles the characteristic myasthenic reaction of which I shall say a little more presently. Otherwise his condition is quite normal; there is no wasting, there is no visceral disease, so far as we can discover, and, as already remarked, the reflexes are quite normal.

These, then, are two characteristic cases of the disease of which I wish to speak to-day.

SYMPTOMS AND CLINICAL HISTORY.

This disease, usually known as myasthenia although the full names myasthenia gravis pseudo-paralytica, has only come into prominence in last few years. It is characterized, broadly speaking, by great muscular weakness, affecting most strikingly, in the majority of cases, the muscles which are supplied from the medulla oblongata, and are therefore closely related to the maintenance of the vital functions. The muscles, however, of the limbs, both upper and lower, and of the trunk are affected, and in some cases there is reason to suppose that they are affected before the muscles which are supplied from the bulb. So far no definite changes in the nervous structures from which the affected muscles are supplied have been found; and it is interesting to note that so long ago as the Seventies Dr. (now Sir Samuel) Wilks published a case of bulbar paralysis without any anatomical changes, a case which in all probability is to be regarded as the earliest case of myasthenia gravis of which there is any record. A very interesting series of cases apparently of this disease is also to be found at the end of Dr. Beevor's article on bulbar paralysis in Allbutt's *System of Medicine.*

The first sign of weakness in this disease usually occurs in the levatores palpebrarum, giving rise to ptosis. Sometimes this ptosis is equal on the two sides; occasionally it is more marked on one side than on the other. It is frequently associated with weakness of the ocular muscles, and the effort to overcome the ptosis by means of the action of the frontales manifests also some weakness in those muscles. Diplopia, of varying character, is often present, the variation depending on the weakness of different ocular muscles. This weakness varies very much at different times. On some days the patient has no obvious signs of weakness either of the external ocular muscles or of the levatores; on another day there is very marked impairment in the actions of all these muscles. Nystagmoid movements are occasionally present, these also being evidence of weak muscular action. Although the external ocular muscles are so frequently and almost constantly affected, it is extremely rare to have any pupil changes. Difficulty in masticating is also frequently present, the masseter muscles especially becoming easily tired, and the patient not uncommonly during eating supporting his lower jaw with one or other hand. This difficulty in masticating is often more marked in the later part of the day, and it may be said that this is a feature of the muscular weakness generally. The muscles about the mouth are also weak, so that there is difficulty in whistling or in blowing out a candle. Dribbling may occur, swallowing is difficult, fluids being more easily taken than solids, although there may be occasional regurgitation, and the pharyngeal reflex is often absent. Palate weakness is also frequent, giving rise to a nasal voice and inability to blow out the cheeks, frequently associated with the articulatory difficulty which is a marked feature in the first case I referred to. The laryngeal muscles themselves are rarely affected, but aching or stiffness of the tongue is frequently complained of, and it may be impossible for the patient to protrude the tongue, or to move it freely from side to side. One very striking feature related to weakness of those structures about the mouth or connected with articulation is the character of the speech. When the patient begins to speak, articulation may be clear and the voice good. As he proceeds the weakness becomes marked, the tone becomes lower, a nasal character is imparted to the articulation, and the patient finally becomes both breathless and voiceless.

The respiratory muscles may also be affected, so that there is interference with the amplitude of movements during respiration. There is dyspnea on the slightest exertion, and, as has already been said, when the patient speaks for a little time there is marked breathlessness associated with the voicelessness already referred to. This dyspnea constitutes an element of considerable danger, because weakness of the structures which are associated with breathing gives rise to actual crises of dyspnea, in which the patient may die; and in several of the cases in which death has occurred it has supervened, apparently as the result of an acute crisis of dyspnea. Besides the trunk muscles, those of the extremities may also be affected. Thus, the arms may become easily tired, and a female patient—as our first patient actually did—frequently complains of an increasing difficulty in carrying out the movements which are necessary in doing her hair in the morning. In the lower extremities the quadriceps and the ilio-psoas group seem to suffer most. Walking far, as a rule, is impossible, and going up more than a few steps of stairs is quite beyond the patient's power. A sudden giving way of the legs, causing somewhat severe falls, is not unusual.

There are various conditions which seem to exercise considerable influence upon this myasthenic weakness. Thus, emotional conditions undoubtedly intensify the weakness in a very marked way. Cold, in some cases, acts similarly, and women affected with the disease are always worst at the menstrual period. Persistence in a movement soon exhausts a muscle, yet even with regard to this point it must be remembered that there are very great variations in muscular weakness, and that a movement which can be repeated only two or three times on one occasion can be repeated as often as twenty or thirty times on another. It is also noteworthy that the patient is frequently very much better and stronger in the early morning, but becomes gradually worse and weaker as the day proceeds, so that movements which can be carried out with ease and facility in the morning are quite impossible in the evening.

The electrical reactions in a case of myasthenia are of very great interest, and the reaction of such cases to faradism is characteristic. It is found that after repeated stimulation of muscles by such a current, the response becomes more and more feeble, so that in time it disappears entirely. With galvanism, however, this phenomenon is not observed. Atrophy of muscles has sometimes been present, but it is by no means the rule. The reflexes are usually very active, but in some cases probably those in which the weakness has reached an extreme degree, it has been possible after a few taps to completely exhaust the knee-jerk, the muscles thus reacting to mechanical stimuli in the same way as they do to stimulation by faradism.

ETIOLOGY.

Males and females are found to suffer with almost equal frequency, and enough cases have now been published to permit of such statistical evidence being regarded as approximately accurate. The oldest case so far published is 55 years, the youngest 12; but I have at present a patient under my care, apparently suffering from this condition, who is only 8; and it is not improbable that as our knowledge and observation of the condition extend, the limit of age may be increased in both directions. The occupation seems to have no distinct connexion with the disease, although the majority of cases described have occurred in manual workers.

In many instances the symptoms have followed some acute illness, such as influenza, scarlet fever, typhoid, or severe diarrhoea; and pregnancy, menstruation, emotional strain, cold baths, and over-exertion have been invoked in different cases as exciting causes. In some instances more than one member of a family has suffered, and occasionally the condition has been superinduced upon some form of weakness already existing, such as lead palsy.

MORBID ANATOMY AND PATHOLOGY.

As regards morbid anatomy, so far the cases examined have shown no definite signs of changes in the nervous structures which supply the affected muscles. Nor have muscles themselves shown any material alteration, except in rare cases, in which a slight degree of atrophy has been present. In some cases, however, very definite enlargement of the thymus gland has been present, in one a condition of lymphosarcoma, in others lymphoid tissue has been present in the muscles themselves, or multiple tumours have been present distributed throughout different organs of the body in such a way as to give possibly some clue to the real nature of the disease. From all that we can gather in the symptomatology of the disease and the condition of the structures generally, it would seem as if the terminal parts of the lower motor neuron were the parts whose function is interfered with. From the nature of the weakness, its variability, and its distribution, it would seem as if we must invoke the presence of some toxic substance to give rise to this interference with the terminal nervous structures; and the presence, in some cases at all events, of the enlarged thymus gland and of the lymphoid tissue in the muscles and other structures already referred to, perhaps give us a clue to the origin of such toxic substance. It seems possible that this tissue is the source of the poison, and that the discovery of its presence may be the means of throwing much light on the origin of the disease. We cannot help thinking in this relation of myxoedema. We know that myxoedema is a disease which is caused by the absence of a certain glandular secretion from the blood, and that by replacing this secretion artificially the disease can be cured. It is possible that in myasthenia we are dealing with a disease which is, in a certain sense, the converse of myxoedema; that in myasthenia we are dealing with a diseased condition, the result of the presence of a poison in the blood, this toxic substance being produced by an overgrown or modified thymus, or by the abnormal lymphoid tissue present throughout the body, and even in the muscles themselves. And if this is so, our efforts in regard to treatment will necessarily be directed to the discovery of some substance which will be antagonistic to the poisonous substance secreted from such tissue.

DIAGNOSIS.

The diagnosis of the condition, when one has become familiar with the type of disease, is not very difficult. Undoubtedly the closest analogy which is offered is to those cases of nuclear palsy in which the cells of the nuclei related to the bulbar and the ocular muscles undergo gradual, and in time complete, wasting. In many cases it may be impossible to say to which class of cases a given one belongs. It can only be by careful and repeated examination, by noticing the variation of the conditions, by recognizing the associated weakness and easy exhaustion of the trunk muscles and those of the extremities that we can be convinced that the condition is one of myasthenia and not one of nuclear disease. In reference to diphtheritic paralysis, as will at once be recognized, the analogy is very close. Similar structures are affected, and they are affected in a similar way; and often in myasthenia the onset of the trouble is almost as rapid as it is in diphtheritic paralysis. In the latter disease, however, there will usually be a history of sore throat, etc., to go upon; there will be an absence of the knee-jerk as contrasted with its activity in myasthenia, and there will be the comparatively early clearing up of the condition under appropriate treatment. Polioencephalitis of a chronic character, which is really the degenerative nuclear palsy to which we have referred already, may also, of course, simulate the condition. An acute polioencephalitis is scarcely likely to be mistaken, the onset being so much more sudden. Hysteria is a name which has frequently been given to cases of myasthenia, and the curious variation in the condition, especially in the earlier stages, when the patient is sometimes apparently quite well, and at other times, even on the same day, profoundly weak and ill, may seem to some extent to justify the mistake. An interesting but tragic example of this error is related in the article in Allbutt's *System* already alluded to. But careful examination of the weakness of muscles, especially the weakness of ocular muscles, which it is almost impossible for a patient to simulate, will usually convince an observer that the condition is not a functional one.

PROGNOSIS.

The prognosis in this disease is always somewhat grave. It is no doubt true that many cases persist in the same curiously variable condition during many years. The second patient referred to to-day has been in a similar condition to that which he occupies at present for about ten years. I recently saw a man in a similar condition in whom symptoms had been present for at least fourteen years. Yet in other cases there is very little doubt that the disease is a very serious one, is very rapidly progressive, and may lead to sudden and somewhat unexpected death. The danger usually lies in an affection of the respiratory apparatus, and patients have frequently died from what may be described as a respiratory crisis. In one instance the patient was admitted to hospital one afternoon about 3 o'clock; she became suddenly dyspnoeic by 8, tracheotomy was done without affording her any relief, and she died at 2 o'clock next morning. The sudden and tragic changes in a patient apparently well a few hours before stamp the disease as one to be looked upon always as possibly serious. Yet in some cases recovery apparently takes place, and it is possible that this is occasionally permanent.

TREATMENT.

Treatment so far has not resulted definitely in any modification of the diseased condition. Strychnine, no doubt, especially if given hypodermically, seems to have a good influence. Thyroid treatment, and various other forms, treatment by organic extracts, have been tried without any benefit. Yet if the suggestion which the recent pathological findings seems to point to be correct, it is to be hoped that some form of antitoxin may be discovered which will have the effect of antagonizing the poison which is possibly formed by the lymphoid tissue which has been found present in certain cases.—*Brit. Med. Journ.*, March 11, 1905.

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এখানে সকল প্রকার হোমিওপ্যাথিক ইলেক্ট্রো হোমিওপ্যাথিক ঔষধ. গ্লোবিউলস, পিলিউলস, ফাইল, কর্ক, পুস্তক, ড্রপার, গার্হস্থ্য চিকিৎসার বাক্স, কলেরা-বাক্স প্রভৃতি প্রচুর পরিমাণে পাইবেন।

সরল গৃহ চিকিৎসা।

গৃহে গৃহে হোমিওপ্যাথিক প্রচার উদ্দেশ্যেই এই পুস্তকখানি সরলভাষায়, সুলভ মূল্যে প্রকাশ করা হইয়াছে; এই পুস্তকে নূতন ব্রতী চিকিৎসকদিগের জন্য আমরা প্রত্যেক পীড়ার নির্দ্দিষ্ট ঔষধগুলির সচরাচর ব্যবহৃত ক্রম উল্লেখ করিয়া দিয়াছি, গৃহস্থ ও শিক্ষিতা বামাগণ পর্য্যন্ত ইহা দেখিয়া সহজে তাঁহাদের সন্তান, সন্ততিগণের চিকিৎসা করিতে পারিবেন। মূল্য—৸০ আনা মাত্র।

ওলাউঠা চিকিৎসা।

ওলাউঠা বা কলেরা অতি সাংঘাতিক পীড়া, হোমিওপ্যাথিক মতের চিকিৎসাই ইহার একমাত্র উপায় তাহা বোধ হয় সাধারণকে আর বুঝাইতে হইবে না, তবে প্রথম হইতে রীতিমত ভাবে চিকিৎসার আবশ্যক। সেই জন্য প্রত্যেক গৃহস্থের একখানি কলেরা পুস্তক ও কিছু হোমিওপ্যাথিক ঔষধ রাখা কর্ত্তব্য। রোগীর শয্যাপার্শ্বে বসিয়া বড় বড় রাশি রাশি পুস্তক হাতড়ান অপেক্ষা ইহা হইতে অতি সহজে, অতি শীঘ্র, রোগের লক্ষণ দেখিয়া ঔষধ নির্ব্বাচন করা শ্রেয়ঃ, ইহার ভাষা অতি সরল, মূল্য—।/০ আনা মাত্র।

সাধারণ মূল্য—মাদার টীং প্রতি ড্রাম ।৵০, ২ ড্রাম ॥৵০, ১ম হইতে ১২ ক্রম পর্য্যন্ত ।০, ২ ড্রাম ।৵০, ৩০ ক্রম ।৵০, ২ ড্রাম ॥০, এককালীন ৫৲ টাকার ঔষধ লইলে শতকরা ১২॥০ হিঃ কমিশন পাইবেন। পত্র লিখিলে সচিত্র ক্যাটালগ পাইবেন।

বটকৃষ্ণ পাল এণ্ড কোং।
গ্রেট হোমিওপ্যাথিক হল, ১২ নং বনফিল্ডস্ লেন,—কলিকাতা।

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HAHNEMANN ANNIVERSARY.

We celebrated the 150th Birthday anniversary of the renowned Hahnemann, our great Master. It has been questioned in orthodox quarters, whether Hahnemann is the Master of the homœopathic practitioners? Does homœopathy owe its existence to Hahnemann? There is the Master of the Rotunda hospital at Dublin. But he cannot be said to be the Master of the accoucheurs and gynæcologists. All systems of medicines have taken their birth and first progress from one man. The Kaviraji system originates from the sage Varadwaj. The Yunani from Avicenna. The allopathic or heteropathic from Hippocrates. Homœopathy from Hahnemann. There might have been inceptions or conceptions of feeble nature previous to these organisers by persons who had not the benefit to create a system of practice of medicine. It is said that the sage Varadwaj received his instruction from the god Indra. Here we are transferred to the domain of myth from the marvel of scientific thoughts. Leaving the consideration of the old systems we come to the new, which has reorganised the ancient practices.

Homœopathic law may be traced from the days of Varadwaj. In the Charak Samhita, the oldest medical work, dating its origin about four thousand years before Christ, passages are found which clearly prove that the idea of *Similia* existed even then, in the treatment of diseases. One of them is significant. It occurs in the *Nidan Sthanam* or Chapter on the Causation of diseases thus: অস্মিন্নর্থে উপশয়ঃ পুনর্হেতুর্ব্যাধি বিপরীতানাং বিপরীতার্থকারিণাঞ্চৌষধাহারবিহারাণামুপযোগঃ সুখানুবন্ধঃ।

One of the annotators explains it in the following way: উপশয়ের অর্থ—হেতু বিপরীত, ব্যাধি বিপরীত ও বিপরীতার্থকারী। এই তিন প্রকার ঔষধ এবং এই তিন প্রকার আহার বিহারের প্রয়োগ আরোগ্যকর হইলে তাহাকে উপশয় কহে। হেতু বিপরীত, যথা—শীত হইতে রোগ হইলে তদ্বিপরীত উষ্ণ; ব্যাধি বিপরীত, যথা—জ্বরাদি রোগে জ্বরাদি নাশক তিক্তাদি সেবন এবং বিপরীতার্থকারী, যথা—অতিসারে বিরেচন, পুরাতন জ্বরে অভ্যঙ্গ প্রভৃতি বৃংহণ ক্রিয়া। ব্যাধি বিপরীত, যথা—ডাক্তারী এবং বিপরীতার্থকারী, যথা—হোমিওপাথী।

Here cure means, the application of medicines to produce comfort according to the principles of, opposite to the cause, opposite to the disease and opposite effect producing medicines.

The annotator says that the first principle, opposite to the cause, means diseases which have been derived from cold to be treated by heat; the second, opposite to the disease means as in fever the use of bitter tonics which can destroy fever; and thirdly, opposite effect producing medicines means the application of purgatives in severe forms of diarrhœa. The last therapeutic principle, the modern annotators unanimously call the law of homœopathy. It will be seen that no difference of opinion exists from which doubt can be entertained that it is not the homœopathic law. The principle has been enunciated. The use of the dose of medicine has not been prescribed.

Leaving aside the authority of Hippocrates or other subsequent writers on the laws of medicine, the source of homœopathy can be traced almost from the beginning of the neolithic days, when the social order was formulated for the first time. The extensive therapeutical application of remedies on the principle of homœopathy was codified by Hahnemann. It must be said that for him we enjoy the benefit of the modern system, and to no one else. For this reason he is our Master and will ever remain so.

Our method of celebration of the Birthday of Hahnemann was a sympathetic duty. It was not a toast-business. It was not a post-parandial speech. The Indians as a rule eat to live and not live to eat. Our lunches are not for show, they are a necessity. With us a king does not precede in honour to a man of learning. Therefore our salutation does not begin with king. The ingrained principle is

বিদ্বত্বঞ্চ নৃপত্বঞ্চ নৈব তুল্যং কদাচন ।
স্বদেশে পূজ্যতে রাজা বিদ্বান সর্ব্বত্র পূজ্যতে ॥

A man of learning and a king can never be equal. A king is, worshipped in his own country, but a learned man is worshipped everywhere.

We honour a hero of letters or science. We also glorify the Land we live in.

জননী জন্মভূমিশ্চ স্বর্গাদপি গরীয়সী ।

Mother and the Birthland are superior to the heaven. The feeling of loyalty is innate with us. It is personal. It does not require a public manifestation. Hero-worship and the worship of the Motherland are taken as our religious celeberations. We are now gradually drifting from the old word Motherland to adopt the new, Fatherland. The reason is obvious. The Western nations do not think of holding Hahnemann anniversary every year. With them it is occasional. To us it is an annual festivity. Hahnemann has become our national hero.

Hahnemann was born on the 10th April 1755 and died on the 2nd July 1843. We celebrate his birth anniversary and do not commemorate his death. We rejoice in his birth and set apart the day of death manifesting no sign of sorrow. If we rejoice in his birth, then we should express our mourning on the day of his death. There would be consistency in our action. Men generally take up and tenaciously hold an idea as a matter of paramount importance without observing relevancy in their method.

The year 1905 is the centenary of the battle of Trafalgar. Men are not wanting who would celebrate the occasion recalling that barbarity of human slaughter. The centenary of the battle of Plassey was noted in a different way by the *Friend of India* in 1857. The Sepoy Mutiny was hinted at in a way which drew the warning of the Government of India.

St. Andrew's dinner finds sympathy in the heart of every Scotchman, though the occasion is not one of particular appreciation by Englishmen. The event is of an ancient origin and both the nations enjoy the occasion. There are few famous persons among Europeans who as national heroes are receiving annual ovations. The significant occasions are celebrated but not the birth or the death of the man who performed the celebrated deed.

In that view of the fact, we would be justified to celebrate the anniversary of the year when the law of homœopathy was promulgated for the first time. If the translation of Cullen's Materia Medica by Hahnemann be compared to the fall of apple which led to the discovery of the law of gravitation, it can be said that the law of similars finds its first recognition in 1790. It was a silent acknowledgment.

The distinct pronunciation of "Similia Similibus" comes in 1796, though the idea was possessed by him in 1790. In 1796 he wrote in Hufeland's Journal, "Essay on a new principle for discovering the curative power of drugs." It has been reproduced in the Lesser Writings. The passage is the following: "*We should imitate nature*, which sometimes cures chronic disease by superadding another, and employ in the (especially chronic) *disease we wish to cure, that medicine which is able to produce another very similar artificial disease*, and the former will be cured; *similia similibus*."

The centenary of the new application of the law of similars should have been celebrated in 1890. The year 1905 marks the 150th birthday anniversary of Hahnemann. That of the application of the therapeutic law of similars, it is the 115th year. This period signifies the existence of the new school. In other words, Hahnemann could find his way to apply the action of the similar remedies to cure diseases in his thirty-fifth year.

That marks the brilliancy of intellect of our medical hero and Master.

After all, it is certain that the distinct individuality of Hahnemann has made homœopathy what it is. The law existed from the ancient days of Charaka, but the application in its profusion and renovated state was absent. There was the meagre hint for its application; without micro-posology that hint lapsed into the domain of darkness. *Similia* remained an idle talk from the dawn of society, but no one tried to apply the law on the basis of pathogenetic provings. The glory of Hahnemann rested on the solid basis of facts, consisting of drug pathogenesy and micro-posology, which could help to fulfil the benefits of the law of *similia*. His verdict was *similia similibus curentur*, in contradistinction to *contraria contrariis curentur*. This is the homœopathy of the present day as distinct from the hazy neglected formula of the old *similia*.

RAT AND PLAGUE.

INFECTION ATTRIBUTED TO RATS.

(Continued from last Number p. 193.*)*

The village of Hamerowal in the Panjab was evacuated on account of the death of rats. It was said that Hamerowal was infected by rats from Punian another village about one hundred yards apart. The inference was due to the belief that human intercourse between the two villages never took place because they were inhabited by two castes. Consequently Hamerowal was infected by rats from Punian. The assumption that no human intercourse did happen between the two villages is something beyond the customary laws. Whatever may be the difference between the two castes it is a wonderful belief that no human being went from the one village to the other for any purpose of necessity. We never heard of such a thing in India before. This is a pure fiction created by imagination against the poor rats. The village of Chak Kalal, another place in the Panjab was said to be similarly affected. These stories only come from the Panjab and not from any other province. Many instances of like nature were cited in support of the spread of infection by rats. The Report says: "There are many other cases of villages on record into which the plague is assumed to have been imported by rats on apparently no better grounds than that the disease broke out among rats before it broke out among human beings, and that no other importation of infection had come to light......The mere fact of the occurrence of mortality among rats before the occurrence of mortality among human beings in a village does not, however, suffice to establish the fact that rats were instrumental in importing the infection, for as we shall see below, in many cases the infection was imported by human agency in infected articles, and was communicated by these to the rats."

PRIORITY OF RAT INFECTION.

It has always been assumed that plague attacks rats before man. There are many instances in which rats were not affected to any appreciable extent, though human beings suffered to a great extent. The Indian Plague Commissioners write: "An epidemic of plague among rats does not, however, as certain witnesses who appeared before us, and M. Simond, in a paper already referred to, have assumed, in every case precede and lead up to an epidemic among men. There are, on the one hand, many instances of severe plague epidemics among men occurring independently of the outbreak of any epidemic among rats, and there are, on the other hand,......isolated instances of epidemics which have not been followed by plague cases among men. Instances of human epidemics which have been unaccompanied by noticeable rat epidemics are the first and second epidemics in Poona and epidemics which occurred in Surat, Nasik, Palanpur City, Ahmednagar, Ahmedabad, Rohri, Khandraoni, Cutch Mandi, and the Cutch State generally."

Further on, "Again, in places other than those we have just mentioned, plague has broken out among rats only in connexion with a second human epidemic, while it has not been noticeable in connexion with the first human epidemic. This, for instance, was the case in Karachi, where mortality was not noticed among rats until the commencement of the second epidemic among men. Belgaum is another instance in point; there the first epidemic among men in October 1897 appears to have run its course without spreading to the rats; in the second and severer epidemic in May 1898 there was a concurrent epidemic among rats. Similarly, in the plague-infected villages in the Punjab there was in the autumn of 1897 very little evidence of the occurrence of the disease among rats; in the spring of 1898, on the contrary, there was overwhelming evidence of rats dying in every direction.

"We can hardly suppose that the absence of noticeable mortality among rats in a large proportion of urban and village epidemics can be attributable to an absence or paucity of rats in the localities in question, and it is one of the as yet unsolved problems, in connexion with the epidemiology of plague, why the disease has spread in different degrees among rats in different localities and different seasons."

We can add our testimony to rat infection without the affection of human beings. In a shop at Nebutola Lane, Calcutta, about 150 rats died in 1900 without carrying the infection to man. Such examples are not rare.

Taking into view all the discrepancies in connection with the plague of rat communicated to man, it is logical to assert that up to the present no case has come to our notice which proves that the epidemic of plague has been disseminated from rat to man. There are sensational writers who believe in the myth that rat has propagated plague to man. It seems that they take a pleasure in pronouncing *auto-da-fe* against these poor creatures. Giridih is said to have avoided the recurrence of plague on account of the destruction of rats. Such assumption is inopportune unless we wait a few years more to see the spread of the disease in all these places. In Madhupur there were isolated cases of plague, but the epidemic visitation has not taken place notwithstanding the presence of rats. In several villages of Burdwan facts of like nature have taken place.

COMMON DISEASES AND THEIR TREATMENT.

XII.

(Continued from May Number p. 188.)

Oxalicum acidum has the following symptoms: *Pains occupy a small space; pain worse on leg movement;* bruised feeling in morning after sound sleep, with stiffness; crawling in spine obliging him to lie down, with general fulness (Pic. ac., Phos. ac.,); pains appear on small longitudinal (circumscribed) spots; blood coagulates very slowly; *bruised sensation from shoulders to loins in morning instead of the habitual pain in small of back;* bruised sensation worse beneath tip of scapula with stiffness; acute pain in back, gradually extending down thighs, with great torture, seeks relief in change of posture.

Allen remarks: "Pains occurring in small circumscribed spots are as, lasting a short time, but very violent. Pains of rheumatic gout, especially worse from sweets." Clarke's note is "Pains appear on small longitudinal (circumscribed spots)," without reference to the duration. In a case of pain in the uterus confined to a small spot with long duration of the pain was relieved by the administration of Oxalic acid. It would be proper not to confine the occurrence of the pain, lasting for a short time. The area of the inflammatory pain is the material for our consideration and not the duration of the pain.

Oxalic acid has another peculiarity. Clarke says: "If *opium* is the painless remedy, *Oxal. ac.* may be considered its antithesis: it causes pains excruciating beyond description, and it has this grand keynote distinction, that its pains are all worse when the patient thinks of them. And not only that, thinking of pains and conditions will bring them on when they are not actually present."

The minor characteristic is that pains are especially worse from sweets. This has been verified. Here it partially agrees with Arg. nit. where diarrhœa is worse from sugar.

Pæonia is a medicine for bruises mostly caused by pressure. It is serviceable in contused wounds due to compression. Ulcers from pressure as bed sores, sores from tight boots also find a suitable medicine on account of the occurrence of pressure. The following symptoms have been recorded : Right ring finger, which received four weeks previously a blow from a blunt rapier, seems as far as the first and second phalanges dead, cold, devoid of blood, shrivelled, yellow, and without sensation; sensation in lower part of calf as if aponeurosis of muscles and tendons were tense or bruised, making walking difficult; swelling of toes, with contraction intermittent sticking through them and burning itching; pain in left little toe as from pressure.

Allen adds the clinical remark. "Abscess below the coccyx." It is certainly suitable to other inflammations due to compression. Ozanam who extended the sphere of its use in inflammations and sores, was guided by the symptoms, "sensation of splinter sticking in skin of right great toe when touched" and "violent pain as from pressure in left little toe." In splinter sensation of abscesses it has an analogue in Nit. ac. We are not at present concerned with ulcers. It can be said that Paeonia will be of great service in cases where the inflammation has been caused by the pressure of boots as in toes, or the abscess is the issue of contusion. Its place has mostly been taken by Arnica, and the improper application often proves a failure.

Palladium is a metal which has more affinity with Platinum than to any other of the rare metals. Hering, the introducer of the medicine says : "If we classify the sulphides according to their solubility in dilute acids, *Pallad.* must be placed with *Argentum*, *Rhodium*, *Ruthenium*, and *Osmium*, and *Platina* remains with the less soluble *Mercury*, *Aurum* and *Iridium*. *Platinum* and *Palladium*, both proved in dust form, showed such similarity in their effects that the question arose whether corresponding *differences* might be found. These data can only be furnished by frequent use of *Pallad.* in practice." We are not interested in the use of Palladium where it corresponds with Platinum in the affection of the ovaries. The part played by the former metal in inflammation in general is our enquiry. It has the following symptoms : Bruised pain in extremities; pain in wrist extending into forearm; burning pain and boring as if shattered deep in hand, at night, waking him; feeling in femurs as if they expanded, or were pressed out of their sockets; as if testicles were bruised; as if parts of groins would tear; every step produces pain in groin. The pains in the hand as if shattered, and those of the heads of femurs as if forced out of their sockets, can help the selection of the remedy in like cases.

Petroleum can produce abscess and boils, is proved from the case of Dr. Muellar where abscesses and boils developed. It is a well known fact that boils generally end in abscesses. This leads us to conclude that clinically there is a relation between the two. We take from Hempel and Arndt the following: "Dr. J. C. Mueller relates the case of an intemperate but healthy woman who took two ounces of petroleum when partially intoxicated. She fell down immediately and was taken in to the hospital without any loss of time. After about an hour she vomited repeatedly and had a violent attack of diarrhœa. The passages from the bowels, but especially the urine, smelled for several days of petroleum. Dr. Mueller was anxious to watch the effects of the oil and, hence, gave her no antidote. The acute symptoms soon passed off, but in a week she complained of vertigo and noises in both ears, with stitches in them. She heard noises, as if bells were tolling or of a water fall. Two weeks later the stitches in the ear were less, but ottorrhœa set in, with a yellow, bloody, odorless discharge, more copious from the left ear. She had constant vertigo and pressing headache; her neck was covered with deep-seated subcutaneous abscesses in the corium. Soon after, a moist, itching eruption appeared on the scalp of the occiput, and as the eczema spread, the otorrhœa grew less. One boil opened after another, and with it the vertigo and the impossibility of standing on her feet for sometime disappeared, at the same time a conjunctivitis developed itself with a blepharadenitis, involving all the Meibomian glands. The right arm now commenced to be painful and to swell at the elbowjoint, but this also disappeared quickly. There only remained a rheumatic drawing in the elbow and finger-joints of both hands, so that the pronation of the forearm produced pains in the elbow while flexion was painful only in the axillary fossa and supination was entirely void of pain. She had also a few boils in the neighbourhood of the anus, and the last symptom was a bronchial catarrh, with expectoration of light yellow sputum of oily consistency and appearance. Especial mention is made of the rapidity with which new symptoms appeared and disappeared."

The following symptoms of Petroleum have been marked: Sprained pain in arms, chest and back; swelling and induration of glands, also after a contusion; *takes cold easily*, which causes faintness; many of the symptoms appear, or are worse during stormy weather; pain in coccyx when sitting; bruised sensation of extremities; pain in elbow, with swelling, the latter so great that it obliterated the fold of the elbow and olecranon, an abscess rapidly formed and rapidly disappeared; sprained pain in wrist; sprained pain in the first joint of thumb; *bruised pain in nail on touch;* sprained pain in hips near sacrum on motion; bruised pain in patella, knees and tibia; swelling of feet; hot swelling of soles; swelling and redness of heel with burning pain and shootings, worse by walking; heels blistered; sensation of splinter in heel.

It may be said that Petroleum has that kind of action in abscesses which Hepar has. The sphere of its action seems to be the inflammation which is about to suppurate. Doubt can be entertained whether Petroleum is useful in the inflammatory stage without the sign of the formation of the pus. The abscess in the elbow appeared and swelled to such an extent as to obliterate the fold of the elbow and olecranon. The swelling in the first stage did not disappear. It vanished when about to suppurate. We are disposed to believe that the medicine will be of great help in cases where Hepar has failed. It is also an analogue of Iridium. The power of the last medicine rests on the full stage of suppuration, whereas Hepar and Petroleum are early applications.

(To be continued.)

MEDICAL NURSING AND NURSES.

In all ages and countries, women have always been found to be best fitted to take care of sick persons. It was however in Europe that they first took to the nurses' profession, and looked after the sick poor or the sick soldier. But the fact that knowledge and training are as much necessary in nursing as in other callings, seems to have been scarcely known prior to the middle of the last century. In those days few women acted as nurses, and those that were so employed "were usually ignorant, often coarse, and sometimes dissipated; while there were no means of giving them a proper training." "Any creature," as Sir Michael Hicks-Beach said at the time of opening a home for nurses in connexion with the Gloucester County Infirmary, "any creature in female human shape—the older and uglier the better and the less suited for any thing else the better—was by a kind of poetic glamour presented to our predecessors as the ministering angel when pain and sickness racked the brow." The change began in 1854, when Miss Florence Nightingale started for the Crimea "on that mission of love and sacrifice which has sunk deep into the heart of nations." That remarkable lady had taught herself how to nurse the sick, and, by dint of perseverence and the cultivation of certain womanly virtues with which she was especially blessed, developed herself into a character which even Shakespeare, the great rummager of the human heart, had failed to imagine. The life-history of such an individual cannot but be fraught with important lessons. We propose therefore to give a short sketch of that life as presented to us in the *British Medical Journal.*

Miss Nightingale was born in Florence, the well-known town of Italy celebrated for the beauty of its situation and its picture galleries. "The cultured simplicity of her parents, and the loving companionship of her only sister, made her youthful home in the Derbyshire dale supremely happy." Here her surroundings tended "to foster her inborn benevolence," and "her ministrations among the sick poor made her realize that woman's best qualities are developed by a sick bed." In her womanhood she visited the chief civil hospitals of England, and the utter unfitness of the nurses who were employed there to do their duties, came most prominently to her notice. It was under these circumstances that she resolved to learn how best to perform those duties. In 1849 she went to Germany for the necessary training, and enrolled herself in the Deaconesses' Institution at Kaiserswörth, a nursing home founded by the Lutheran Pastor Fliedner. It was here that she became qualified for her great life-work of philanthropy.

Meantime the Crimean War broke out in Russia. English troops were sent out in large numbers; but the commissariat arrangements were very defective, and the authorities at the head quarters had not the patient labour necessary to provide all things needed for the subsistence and comfort of those troops. Men fell ill by hundreds and thousands, and the sick and wounded were collected in one place. There were doctors to prescribe medicines, but there were no persons fit to attend on the sick and minister to their comforts. The "chivalrous" Sydney Herbert, then in charge of the War Office, found Miss Nightingale to be a thoroughly trained nurse "of gentle birth, high accomplishment, personal beauty, charming manners, kindliest sympathy combined with rare power of organization, ready to succour the sick soldiers." He asked her to go out to the help of the poor sick. She went, and "by heroic sacrifice, devotion, energy and skill," did much with her fellow nurses to bring the military hospitals into order; and it was through the gentle help of these ladies that "many a sick soldier's life was saved, and many a dying man went peacefully to his rest." After her return to England from the East, she engaged herself in many similar enterprises during the past fifty years, made several contributions to nursing and sanitary literature, and enjoyed the friendship and regard of Queen Victoria. She is now in the eventide of her life, continues to have her share in various acts of philanthropy, and has won the sympathy, affection and good opinion of the whole civilised world.

The work of Miss Nightingale and of her fellow nurses in the hospitals at Scutari, led to a movement which, as Sir Michael Hicks-Beach has pointed out, soon spread itself to the great institutions of England, and has permeated the private and social life of the English. The use of a trained nurse in all kinds of cases, whether medical, surgical, obstetrical, or mental, has come to be felt. No gynaecologist, no superintendents of Asylums can at present treat their patients properly, nor can a skilled operator carry out an operation, without the aid of trained and experienced nurses. But whenever a case takes a very serious turn, or, "when an operation is over, when every symptom of the patient has to be watched and recorded, when medical and surgical directions have to be carried out carefully and to the very letter, when every change in the patient's condition has to be noted," then the services of a really able nurse become indispensable; and it is here that the English nurses, at least such of them as have obtained higher training, show themselves to the greatest advantage. The French doctors and superintendents of nurses, who lately visited England, bore a high testimony to the care taken in the selection and in the training of candidates for the nursing profession, and were greatly impressed with the high moral character of the English nurses, with their strong sense of duty, their technical skill, their evident love of their work, and their keen interest in the patients placed in their charge. The respect for themselves and for their neighbours, which is one of the best features of the English character, impels these nurses to do whatever they have to do as well as they possibly can.

The Nursing Superior of the Pasteur Hospital at Paris complains however that the very perfection of the training of the English nurses, is apt to give them a somewhat overweening sense of their technical knowledge, and thus breed a tendency to attach an undue importance to such knowledge, and to consign the womanly qualities of tenderness, sympathy and tact to a lower place. This opinion has found an echo elsewhere, and the "new nurse" with a smattering of elementary anatomy and physiology is held to be a source of danger in the sick room, a great burden in the household, a cause of annoyance, and too often a hindrance to the doctor. This "weak spot" in the English system of nursing, is much to be regretted, but time will doubtless wear it away, under the present attempts for the promotion of the higher education and training of nurses, and in favour of state registration which would distinguish the trained from the untrained nurses. It is a significant fact worthy of special notice that the educated nurses have united together to make themselves as efficient as possible, and to look after their own interests, and that about 3,000 of their number have been instrumental in founding the Royal British Nurses Association. They have also secured the sympathy and support of the British Medical Association, the Central Hospital Council of London, and of many other bodies of medical men.

In the continent of Europe, Germany perhaps takes the lead in the matter of nursing; and the subject is well attended to in almost every other country, with the exception perhaps of France where nurses do not receive proper training and where their position is anything but satisfactory. Even here steps are being taken however to bring about a better state of things. But it is in the United States of America, that the education and training of nurses are most looked after. A very large number of nurses are now employed in the navy and the regular army corps of that country. Only those women are selected who have sufficient knowledge of medicine to be able to prescribe for emergency patients, and to diagnose cases, if necessary. They are taken from the best training schools and are subjected to a rigid physical, mental and moral training; their pay is about as much as could be obtained from private nursing. About two years ago, the Health Department of New York appointed trained nurses for the public schools of that city, their chief duties being to examine the children as to cleanliness, and to instruct the mothers at their homes how to treat all cases of sickness. This plan has worked satisfactorily. Each of the schools is now visited every day. The children are enjoying better health; and the success has been so great as to tempt the authorities to extend the system and appoint trained nurses to take care of children suffering from skin and contagious eye diseases. To prevent the mischief done by unqualified nurses, the New York State Nurses Association has succeeded in causing the local legislature to pass an act sanctioning the registration of trained nurses in the State under the auspices of a board of examiners to be appointed by the regents of the local university. Similar acts have also been passed by the States of Illinois, Virginia, North Carolina, New Jersey, Louisiana and Pennsylvania, so that state registration of nurses now bids fair to be almost universal in America.

In Asia, Japan has created a most efficient system of nursing. We are indebted to Dr. Nicholas Senn of Chicago for an interesting account of the way in which the sick and wounded are treated and taken care of in that far eastern country. It was only in 1877 during the insurrection in the South-Western Provinces that a Society of Benevolence was founded. After the pacification of the rebellion, this Society continued to exist and became a permanent institution. When the Japanese government recognised the articles of Geneva convention, the society placed itself in connexion with the International Committee of the Red Cross at Geneva, and entered into friendly relations with similar societies in other countries. The Red Cross Society of Japan thus formed, is at present composed of 800,000 members, and is the strongest organization of its kind in the world. The Imperial family takes the deepest interest in it. It is also very popular with all classes of the Japanese, so much so that the attendance at its annual meetings is seldom less than 200,000. The preparations of the society are so complete that in a day or two, it can load a hospital ship or a railway train, and send it to the seat of war. In times of war the Red Cross Hospital in Tokio becomes the largest and best military hospital in the country. In times of peace it is a training school for nurses. Here females between the ages of eighteen and thirty are admitted, and have to remain for three years for education and training. After passing a rigorous examination, they receive certificates which entitle them to practise as nurses. They are allowed to take private cases, but in times of war they are liable to be called upon for service in the military hospitals. At present there are from 2,000 to 3,000 such nurses in Japan. In surgical cases, the surgeons do the important dressings, and the nurses wait upon the patients and attend to the bandaging. The Japanese nurses are very hardy. They live in the simplest way, sleep on two cushions, and have one miniature locker. They are on duty for twelve hours in the twenty-four, are always smiling and good tempered, and give the closest attention to the patients in their charge.

Dr. Anita Newcomb Mcgee, who served as an assistant surgeon in the late war between the United States and Spain, and who took nine American Nurses to Japan in 1904, has given the following account of the Japanese women nurses:—On entrance into the training school, they have to pass three months on probation, during which twelve hours daily are spent in cleaning and other manual work. For the next year and a half alternate days are spent in the same way, and the other days in attending lectures and studying from notes. At the end of this time the pupils receive printed text books for study, and are sent into the wards for eighteen months for practical nursing before graduation. One most remarkable thing about these nurses, which Dr. Mcgee has noticed was "their extraordinary strength and endurance." At the Hiroshima hospital they were on duty for twenty-eight hours on end with only such sleep as they could get in the ward anterooms where they were within call. They drank hot tea at any hour, and took scarcely fifteen minutes to take their light, cold meals. They thought nothing of carrying a man on their backs. They were "cheerful, generous, and always willing and uncomplaining," and were kindly attentive to the patient as if they were his own female relatives.

Miss. E. McCaul, who was deputed by the Queen of England to see the working of the Japanese Red Cross Society, "has nothing but praise for their nurses. Their dress is very simple, and they are very quiet and efficient. Implicit obedience plays a great part in their training. They are splendid in the sick room. Their gentleness of manner, soft voice, intelligence and quickness are most marked, as well as their little hands and delicate touch." It is only during the last sixteen years that the Japanese women have got systematic training in nursing, and during this short period they have made wonderful improvement.

India seems to be the only other country in Asia where nurses find field for employment, but female nurses appear to have been very rare prior to the great Indian mutiny. About the year 1859, the Calcutta Nurses' Institution was organized for the benefit especially of the friendless sailors and other poor Europeans, who form a large proportion of the inmates of the Presidency General and the Calcutta Medical College Hospitals. This institution receives pecuniary aid from Government, but is managed by a strong committee, and is supported mainly by private subscriptions. It provides trained nurses not only for patients in hospitals, but for private families also. The Principal of the Medical College and the Surgeon-Superintendent of the General Hospital bear testimony to the excellent management of the establishment, and to the very efficient manner in which the nurses do their duties. The training of nurses at the Eden Hospital is now under the supervision of the Clewer Sisters, and is being carried on very successfully under an improved scheme. Besides Calcutta, Madras and Bombay have got their own Nursing Institutions.

For the European Army in India, nurses are imported from England from a special service corps, which offers a career of variety and great usefulness to ladies who have completed their training in a civil hospital, and where radical alterations in nursing policy has been introduced. Queen Alexandra's Military Nursing Service has also been extended to the principal military stations of India, where the Eurasian and European women domiciled in this country, as well as soldiers' wives, receive training as nurses.

In addition to the above, many native women have been taught to nurse the sick, and have thus proved themselves very useful to the community at large. We hope that the examples of Miss Nightingale and of the Japanese nurses cited above, will rouse some of the educated females of this country to follow in their footsteps, and render important service to the sick persons of this land. One great hindrance to the success of Homœopathy in India is the want of a body of well-trained female nurses, who would not only possess the qualities detailed above, but should also be keen observers of symptoms which might be developed in the patients during the progress of their diseases. We hope and pray that a beginning will soon be made to have this want supplied, and that India will follow Japan in turning out a superior class of nurses.

REVIEW.

The Diseases of the Uterine Cervix, by Homer Irvin Ostrom, M.D., New York, Surgeon to the Metropolitan Hospital. Published by Messrs Boericke and Tafel, 1904.

The book deals with a particular subject of the female sexual organ. The author has divided the diseases of the uterus into two portions, naturally following the anatomical and physiological facts. The uterine cervix is thus differentiated from the corpus. He has taken up the study of the former. The diseases of the cervix being more common than the corpus. We welcome the author for the specialisation of the subject. In the first chapter, he devotes to the study of the development of the uterus and vagina. The second takes up the anomalies of development, and congenital defects, In the third, the anatomy of the uterine cervix finds a place. The fourth and the fifth occupy the general causes of the diseases of the uterine cervix and the gynaecological antisepsis respectively. In the last, preliminary procedures of operation have been considered. Dr. Ostrom being a surgeon of rigorous antisepsis does not hesitate to use the bichloride compress and vaginal douche of bichloride of one in two thousand. Being convinced of the bactericidal properties of alcohol, he increases its action by the use of acetic acid. We think he could have been satisfied by using alcohol only without the other medicines which are capable of being absorbed and causing some disturbance. The operator's hand has been well advised to be immersed in very hot water for ten minutes.

The laceration of the uterine cervix may be congenital or acquired. The most frequent cause in this country is the use of forceps. It should be said that the hasty operation by an unclean and improperly aseptic instrument has given rise to many troubles which have often proved dangerous to the life of the patient. The practice has been utterly condemned but it is still resorted to by many practitioners. Not only septic absorption causing pelvic cellulitis are manufactured by the work of men who are quite devoid of the responsibility of an operator, but they also invite the first seeds of diseases which germinate most dangerous maladies at a distant period.

The chapter devoted to the inflammation and hyperplasia of the uterine cervix fully brings into view the several kinds of diseases, from cervical catarrh, endocervicitis to several kinds of glandular, polypoid and cystic outgrowths. It is an interesting review of the many diseases which are met with as the result of chronic inflammation. Scrofulosis finds medicinal treatment. Tuberculosis is dealt with in the next chapter. About one hundred pages have been absorbed by the consideration of the intricate question of neoplasms. Almost the rest of the book takes into consideration the most important surgical operations, removal of the uterus, supra-vaginal hysterectomy and vaginal hysterectomy. Therapeutics and repertory have their place at the end. We can not but offer our congratulation to the author for the able manner in which he has executed the work. It is the production of a specialist performed with significant ability. We hail with delight the publication of such a book in homœopathy, showing the progress that the system is making in the New World.

Messrs Bœricke and Tafel share our respect for their zeal in publishing this useful monograph.

The Mnemonic Similiad. By Stacy Jones, M. D., Bœricke and Tafel, 1904.

The little book really refreshes the memory of the students of homœopathy. We in our college days improvised a few Bengali couplets to remind us of the anatomical relations of structures and the physiological effects of certain medicines, which puzzle the students. The book is therefore a curious production and it deals with the most salient features of our materia medica.

Family Practice: or simple Directions in Homœopathic Domestic Medicine. Published by E. Gould and Son, Ltd.—1904.

It is a little compendium of the practice of medicine suited for the guidance of an intelligent man among the family. The service sometimes becomes inestimable for persons residing in rural places, far apart from urban towns, where medical help of any form can be scantily met with.

EDITOR'S NOTES.

A Hereditary Multipara.

Olshausen (Zentralbl F. Gynak., No. 4., 1905) exhibited at a medical society a hereditary multipara, who passed through eight twin deliveries. Her mother had passed through seven twin deliveries, and her grand mother through four or five. He thought that this tendency to twin pregnancy depended more probably on an unusual number of follicles in one ovary which managed to come to maturity, than on an abnormal number of ova in single follicles. —*Brit. Med. Journ.*, April 1, 1905.

Medical Education in London.

At the last annual meeting of the Medical Society of London, Mr. Henry Morris delivered the oration for the year, in which among other things he maintained, in reference to the proposed delegation of the teaching of pure science to an Institute of Medical Sciences, that the only teaching from which the medical schools should be relieved, was that of Physics, Chemistry, and Biology, and an examination on these subjects must be passed before the five years' medical curriculum was commenced. As Anatomy and Physiology were the keystones of Surgery and Medicine, they must continue to be taught in the Medical Schools. He also recommended the founding of an Institute of Medical Sciences for research, either in association with the University of London alone, or in conjunction with the two Royal Colleges also.—*Brit. Med. Journ.*, May 20, 1905.

Ambrosia.

Dr. F. R. Wilcox in the *Hahnemannian Monthly* speaks of the use of Ambrosia in intestine disorders, especially of infective type. In the northern part of the State it is not only used for the ailments of man but of beast as well. Young calves, soon after the weaning period are particularly prone to diarrhœa or "scouring," which if not checked in the first stages greatly retards the growth of the animal, if it does not result fatally. In this special condition, Ambrosia is said to act like a charm.

Dr. Wilcox found this medicine to work most satisfactorily during an epidemic of bowel disorder, in all forms of diarrhœa from the simple variety to the severe dysentery. He also prescribed it for the colliquative diarrhœa of phthisis. Its use in this particular form was limited, for it only helped to hold the exhausting condition in abeyance for a while. The Doctor prescribed the tincture in doses of five to ten drops repeated every two to three hours.—*The North American Journal of Homœopathy* for March 1905.

Plague in India.

In answer to Mr. Herbert Roberts, the Secretary of State for India said, in the House of Commons, that from January 1st 1905 to the week ending April 1st inclusive, the number of plague deaths in India was 471,744. Mr. Brodrick added that under arrangements lately made the plague mortality in each calender month would be reported to him from India by telegraph, and he hoped to communicate it regularly to the press for the present. So the Indian Secretary of State has at last consented to let the British public know of the fearful mortality now occurring in this country. The plague now decimating India broke out in 1896; so the Indian authorities have taken more than nine years to find out the gravity of the situation. A debate on the subject might have disclosed further facts of the enormous and increasing mortality, and the methods which have been and are still employed to check the outbreaks. But all chance of a such a debate being raised has been destroyed by the supporters of the Government. The chief medical journals of England consider this state of things to be a serious blot upon the administration of the principal part of the British Eastern Empire, and they strongly recommend that the Medical Associations of the British Isles will urge and aid the rulers of this country to do their utmost to remove this blot.

Camphor Poisoning.

Dr. Graham Grant of London, son of Dr. Leonard Grant, gives the following account of a case (see *British Medical Journal*, May 20, 1905.):—"A police constable was called to see a man who had taken poison and found him apparently dying. While the officer was preparing an emetic, the patient vomited and seemed to get immediately well, but the officer decided to take him to the hospital, whither he walked with ease. The house physician was unable to find anything to support the history, so the man was taken to the police station. While the constable was explaining the matter to the inspector, the prisoner was seized with a convulsion, which rapidly passed into collapse, and of such a character that even an officer of this experience, added to his request to me that I should come, 'I think the man is dead.' I was at the police station in less than ten minutes and found the patient standing. He smelt strongly of camphor, as did also the vomit on the floor; the pupils were dilated, and the pulse flabby, but there the signs ended. After the usual first aid I sent him to the infirmary, where he got quite well in one day."

This case corroborates the opinion of experienced therapeutists that the action of camphor is very variable and reports are most contradictory. In the present case the patient must have taken a large dose of camphor.

Diet of Infants.

J. P. Crozer Griffith (*Amer. Med.*, February 4th., 1905) opines that weaning should be commenced at about the age of 10 months, only one bottle of food (cow's milk) being given at first and this of a strength less than mother's milk. Gradually the number of bottles and the strength of the mixture should be increased, until at the age of a year the food should consist of milk only but slightly diluted. Systematic weighing, twice weekly, is very necessary during this period, in order to anticipate any decided falling off of the normal gain in weight. Some form of gruel should be added to the bottle to accustom the infant to the digestion of starch. At the age of 1 year, feeding with the gruel or barley—not oatmeal—begins; this being given in the middle of the day. Later on this should be given at breakfast time, and rice, bread or hominy grits with beef juice should be given for dinner. A plain dessert such as rice pudding or junket should be added soon. Eggs may be tried cautiously at 15 months. Potatoes and meat should not be given until 18 months. The author gives diet tables for children of different ages up to 3 years, and a list of permissible and non-permissible articles of diet for periods beyond this. In conclusion he lays stress on the following general rules:—That milk must continue throughout early childhood to form the chief article of diet; that broths are good as food only through the cereal addition to them; that new foods should be given very cautiously, and insufficient food should not be continued too long; that children in the 2nd year should be fed more frequently; that too much meat is better than too much starch; and that the age and need of the child rather than the teeth, should be the guide in determining when the giving of meat should be commenced.—*British Medical Journal,* April 1, 1905.

A case of Almond Oil Poisoning.

The following interesting case has been reported by Dr. H. E. Heapy of Liverpool in the *British Medical Journal* of 29th April 1905:—"The patient, a boy aged 9, was a strong healthy lad, who was suffering for a little toothache, and retired to bed in the best of health. Shortly afterwards, the boy vomited and his breathing became peculiar. The mother found him unable to speak, eyes wide open, bright and staring, lips and fingers of a violet colour, jaws clenched, limbs in a state of tonic spasm and breathing in gasps. When I saw him he was completely unconscious, breathing, lips and fingers, jaws and eyes as above, the pupils were dilated, no response to light, pulse hardly perceptible at the wrist, limbs quite relaxed. Whilst examining, I also noticed a strong smell of prussic acid about his mouth, and it was then that I elicited from the mother that she had soaked a piece of cotton wool in almond oil, and placed the same in the offending tooth." The treatment carried out was artificial respiration, ammonia to the nostrils, and a mustard plaster over the pericardium, together with the usual hot applications to his cold body, and a hypodermic of strychnine. In about half an hour the boy's breathing became better and the pulse also greatly improved. The treatment was persevered in, and in 3 hours' time he showed signs of regaining consciousness. Next day he was quite conscious, but complained of headache. His lips were still rather bluish, but his pulse and heart were quite normal. A light simple diet was ordered, and the room kept well ventilated. In the evening he was practically all right, and has remained so ever since. The oil used was the oil of bitter almonds, which contains from 15 to 25 per cent. of prussic acid. The piece of cotton wool was not found in the patient's tooth; probably he must have swallowed it on going to bed.

Plague at Leith and in the Port of London.

On the 5th May 1905, a labourer was admitted to the Leith Fever Hospital said to be suffering from enteric fever. On the 9th May a swelling was found in the left groin. Some fluid removed from this swelling by aspiration showed on bacteriological examination plague bacilli. This was verified by Dr. Buchanan of Glasgow and other observers. The man was well and at work one day, but on the next day he was unable to go out on account of headache, vomiting, and general weakness, with a temperature of 103°F. He died on the 6th day of the disease. On the 8th May a daughter of the labourer (a girl of 3 years of age) was also sent to the hospital; she too had a swelling on the left groin, and other marked symptoms of bubonic plague. On the 10th, the mother and another child (a boy of 6 years of age) were also admitted apparently showing plague symptoms. The girl had a high temperature, furred tongue, loss of appetite, and glandular swelling in the groin. The mother also had high temperature and pain in the groin, and could not put her foot to the ground. The boy had no serious symptoms. These three patients are making satisfactory progress towards recovery, and no further case has occurred. No evidence of the disease in rats has yet been found, nor has any other light been thrown on the cause of the outbreak. Great credit is due to Dr. Robertson, the Medical Officer of Leith, for his early recognition of the disease, and his vigorous action to prevent its spread.

On a vessel which arrived in the Port of London lately, a man was found suffering from fever. He had fallen ill while the ship was lying off Ferrol in Spain; at sea he became worse. Mr. Hancock, the Boarding Medical Officer at Gravesend thinking the case suspicious had him removed to the Sanitary Hospital. From the clinical symptoms Dr. H. Williams, the Port Health Officer, formed the opinion that the man was suffering from plague. Dr. Klein's bacteriological examination confirmed this diagnosis. He also succeeded in producing the disease of plague in a captive rat by means of the fluid he had collected from the patient's bubo. The man's condition improved after two injections of an anti-plague serum which Dr. Klein had prepared in 1901 after the method of Dr. Haffkine and had continued efficient. The man ultimately recovered and was sent back to Spain. It was stated that the patient had been seen catching rats with his hands. No sick or dying rats were found in the vessel. The crew with all their effects were thoroughly disinfected, and the vessel was thoroughly fumigated from stem to stern. All other precautionary measures were also taken to stop the extension of the disease.—*British Medical Journal*, May 20, and June, 3, 1905.

CLINICAL RECORD.

Indian.

A CASE OF HAEMORRHAGIC DYSENTERY.

By Dr. Hem Chandra Ray Chaudhuri, L.M.S.

Babu——————aged fifty-four, residing at Sankaritola East Lane, was attacked with dysentery, on the 19th April, 1904. The stools were mostly mucus tinged with blood. Nausea and vomiting of bile usually accompanied the colicky pains. Colic of severe character, as to force cries and tears, always preceded the stools. The location of the colicky pain was in the left hypogastric region. The attack came on suddenly without any premonitory symptom. Temperature in the morning was 101·8·F. *Ipecac.* 6 dec. dilution. Evening temperature 102·4.

20th April. There were sixteen stools day and night during yesterday. The stools gradually changed into more blood than mucus. The last few evacuations were only bloody in their character. The colic in the left hypogastrium was severer than yesterday. The pains seemed to begin in the left hypogastrium and proceeded to the end of the descending colon and the sigmoid flexure. *Coloc.* 6 dec. The morning temperature was 101. In the evening, it rose 101·6.

21st. Yesterday the stools reduced to five in number, though they were mostly bloody. The colic became less tormenting. Morning temperature 98·6. *Aco. ferox* 1 dec. The evening temperature was also 98·6.

22nd. Had four stools yesterday. The quantity of blood decidedly lessened. The colicky pains remained, but they considerably mitigated their severity. Temperature in the morning 97·8. *Aco. ferox* 1 dec. Evening temperature 98·2.

23rd. Had three stools yesterday mostly mucus, mixed with blood. No medicine was administered. No temperature was taken as it reduced to subnormal state.

24th. Two stools were passed yesterday mixed with blood. The colic almost disappeared. *Nux. cortex* 3 dec. dilution.

25th. Had one stool yesterday, but it was mixed with blood and mucus. The faeces was rather of a compressed form. *Nux cortex* 3 dec.

26th. Had one stool yesterday mixed with blood and mucus. The blood and mucus were passed first and then the stool followed. *Nux cortex* 3 dec.

27th. Had one stool yesterday, without blood and mucus. *Nux cortex* 3 dec.

Remarks.

This attack of dysentery happened with myself. *Ipecac.* was taken as the colicky pains were sometimes attended by nausea and vomiting of bile. *Coloc.* reduced the distressing colic but could not produce any further effect. *Aconite ferox* could check the fever and reduce the quantity of blood. I am using Aconite ferox for a long time in cases of dysentery with marked success The significant character of A. ferox is to lessen the number and to change character of the stools, which A. napellus cannot. *Nux cortex* or the tincture of the bark of Nux vomica as distinguished from that of its seed, gave the finishing touch of cure. It has often proved successful in diminishing or checking the ejection of blood in dysentery and giving formed stool. I use the name *Nux cortex* to prevent confounding with Angustura spuria. Serious doubt is entertained whether the last medicine can be said to be identical with the bark of Nux vomica. The tinctures of Aconite ferox and Nux cortex were prepared by myself, and it can be said that they have given satisfactory results.

A CASE OF HAEMORRHAGE.

UNDER DR. AMRITA LAL SIRCAR L.M.S., F.C.S.
REPORTED BY BABU NAVADWIP CHANDRA DAS,
Homœopathic Practitioner.

On the 16th of May last 1904 at about 3 A. M. I was called at Hastings to see an up-country man nearly 50 years old, who had been vomiting blood and who passed a copious stool consisting of tarry blood just before my arrival.

The history of the case is that he walked in the sun from his native village to Arrah station a distance of about 30 miles and he took some unwholesome food on the way and drank water several times to allay thirst. The patient arrived at Calcutta on the 15th of May and vomited a quantity of blood when he went to wash himself. This was the first time in his life that he threw up blood.

16th May, 3 A.M. I found the patient was chilly and covered himself notwithstanding the great summer heat. Nux. v. 30, 3 doses, every 2 hours till decided improvement.

11 A.M. No vomiting, no stool since 3 A. M. after a single dose of Nux. v. No medicine. Barley water was given.

At midnight I was called again to see the patient who had passed two bloody stools. He seemed to be thirsty and anxious. I prescribed Arn. 6, two doses, on the supposition that the haemorrhage might be due to the weary brought on by a long journey.

17th May, 6 A.M. No improvement, the haemorrhage went on; the patient was getting worn in every respect: the pulse weak and rapid; anxious; thirsty; complains of burning sensation about the epigastrium; wanted constant fanning. Gave Ham. 1 about four or five doses.

Dr. A. L. Sircar was sent for and he came at 9 A. M. and confirmed my prescription of Hammamelis, but suggested Ars. 12 should the former medicine fail to produce the desired effect. I came back to see him again at 11 A.M. 4 or 5 doses of Hammamelis were given to no purpose. I found him very restless and anxious so much so that he earnestly prayed to cure him as soon as possible. He was very thirsty *drinking little but often*, complained of much burning sensation within the abdomen; the pulse grew weaker although the body on the extremities were not so cold and he wanted constant fanning. I put 4 globules of Ars. 12 dry on the tongue, leaving the instruction to repeat the dose after 2 hours if necessary, but it was continued every 2 hours till 3 doses were administered. I called at 4 P.M. and was glad to find the patient decidedly better in every respect but that he was complaining of much burning sensation all over his body and was more thirsty and restless. He passed no more stools, his pulse much better and there was no sign of internal haemorrhage.

Sent report to Dr. Sircar who advised me to stop Ars. if I should think it an aggravation and to give a dose of Carbo. Veg. But I had no occasion to prescribe any medicine as the improvement was lasting and the haemorrhage never returned.

Remarks. Knowing that Ars. was the better indicated remedy, I tried Hammamelis one of the most highly lauded haemostatics but in vain. Routine prescribing plays no very important role in the right selection of homoeopathic remedies.

Gleanings from Contemporary Literature.

SOME CONSIDERATIONS ON THE NATURE OF DIABETES MELLITUS.

Delivered before the Royal College of Physicians of London on March 16th, 21st, and 23rd, 1905.

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LECTURE I.

Delivered on March 16th.

Mr. President and Gentlemen,—I must first thank you for the honour which you have conferred upon me by inviting me to deliver these lectures—an honour which I very highly appreciate but which has nevertheless proved to me a source of considerable embarrassment. Indeed, the hesitation which I at first felt about undertaking the duties of the post has since been strengthened into an assured conviction that it was only too fully justified. It must always, I think, be a task of great difficulty for one of the junior Fellows of this College to deliver a lecture before his seniors who must needs be better acquainted with all the facts of medicine than he; and the difficulty is specially great in the case of one who, like myself, is attached only to a comparatively small hospital where material for study is much less than that available at our larger institutions. Fortunately, it has been wisely arranged that the Goulstonian lecturer should deal mainly with pathology—the theoretical side of disease—rather than with clinical phenomena or treatment. And as pathology is a constantly advancing science it may be profitable at times to review some of the facts recently ascertained and the hypotheses put forward to explain them, if only to elicit the truth that there are still very lamentable gaps in our knowledge upon all medical subjects and that the continual stream of medical writings rather conceals than fills in these deficiencies.

In choosing for my subject the nature of diabetes I am conscious that I may appear guilty of more than ordinary presumption, inasmuch as it is one which has been most exhaustively investigated by one of the senior Fellows of this College who has made the subject his own and attained therein a position of authority which is recognised throughout the civilised world. Dr. F. W. Pavy, by his careful and illuminating researches into the physiology of the assimilation of carbohydrate food, has thrown light into some of the dark corners which abound in the field of diabetes. Yet he himself would readily, I think, admit that the nature of the disease is still far from being finally determined; that there are many problems awaiting solution and scope for much further research and speculation.

As it was the original intention of the founder of these lectures that they should be devoted to demonstration of morbid anatomy, so I hope to deal mainly with the relation of the disease to structural alterations in the organs, recognisable after death, and to discuss the reasons which exist for associating any one of them causally with the existence of diabetes. But in recent days all the great advances in pathology have been made by means of experiments on living animals and I would refer also to the results of some such researches which have appeared to give rise to conditions resembling the human malady. Lastly, there have in the last few years been promulgated theories connected with the resistance of the body to parasitic invasion which have involved conjectures as to some of the processes by which food is assimilated by the tissues. It may be not wholly uninteresting, though unfortunately premature so far as certainty is concerned, to speculate as to the bearing of these theories on the pathology of diabetes.

DEFINITION OF DIABETES.

In the discussion of any matter it is advisable to make some attempt to define the terms which we are using and it may be useful at the outset to consider for a moment what it is that we mean when we speak of diabetes mellitus. It is true that definition is impossible in science before we know all about the phenomenon which we wish to define, and for this reason final definitions are practically unattainable, except in abstract reasoning such as mathematics, since knowledge of natural phenomena and their causes is constantly growing. In the field of medicine we can see the process of modification of our ideas in accordance with the advance of knowledge constantly at work. Thus originally, as Allbutt has pointed out, diseases were groups of symptoms which recurred in association sufficiently frequently to constitute a definite idea. No doubt scientifically minded persons early realised that these groups were the outward and visible signs of altered conditions of the body, but of the nature of the condition present in each case they had no knowledge. Later it was found that certain structural alterations were invariably associated with the symptoms of many diseases and these underlying physical conditions assumed more and more importance in the connotation of the name of the disease. In these instances the stage of morbid anatomy had been reached. Later still we have acquired a knowledge of the causes of certain diseases and of some at least of the means by which they produce their characteristic symptoms. This knowledge is only definite in the case of some of the infective diseases, such as tetanus or tuberculosis, in which we can isolate the pathogenic bacteria, investigate the poisons which they generate, and unravel to some extent their modes of action and the defensive reactions of the infected organism.

In the case of many diseases we are still in the stage of morbid anatomy; examples are seen in the various anæmias, of which nothing more is known than the alterations in the constitution of the blood. In diabetes we have hardly as yet attained to even this stage of knowledge. Attempts have, indeed, been made to show that changes are invariably to be found after death in the pancreas, of which I hope to say more in my next lecture; but at present there is no consensus of opinion as to the constancy of these changes—or rather, it has been pointed out there are many cases of the disease in which no alterations in this organ can be demonstrated, so that there seems a danger of even this association—the most hopeful prospect of establishing the disorder on an anatomical basis—proving elusive. Yet we know that it is impossible for perversions of function to occur in normal circumstances without coexistent alteration of structure, since function is merely structure undergoing change, as was pointed out by G. H. Lewes many years ago; so that if the conditions of the cell remain the same and its structure the same the function must continue the same likewise. In other words, all functional defects must arise from structural lesions, whether these are gross, or microscopical, or ultramicroscopical.

In the case of diabetes the gradual alteration in the connection of the name can be easily recognised. In the earliest times, when the name was first invented, there can be no doubt that all conditions accompanied by polyuria were classed together; to all the comparison of the patient to a syphon transmitting a continual stream of water was equally applicable. The discovery of the existence of sugar in some cases of the disease was made late in the history of medicine. In the East it was unknown till some hundreds of years after the commencement of the present era and in the West it remained undiscovered till the time of our countryman, Willis, towards the end of the seventeenth century who noted the sweet taste of the urine. The actual proof of the presence of sugar was afforded a little later by Dobson. The spirit of Western inquiry, as contrasted with Eastern apathy, is well exemplified by the rapid growth of information on the subject which followed Willis's discovery. The writer of an anonymous medical treatise on diabetes, published at Oxford in 1745, notes that the disease was then attracting much attention and discussion; and up to the present time an ever-increasing volume of writings has centred round its pathology.

Since the discovery of sugar in the urine and the resulting separation of saccharine from insipid diabetes and from other causes of polyuria further steps in the subdivision of the subject have been made. In the first place it is recognised that all cases in which there is sugar in the urine are not diabetes mellitus. Glycosuria is now known to be a possible accompaniment of many diseases having no apparent connexion with the malady with which the condition was first associated. Cerebral injuries, many nervous conditions, Graves's disease, and other maladies may be accompanied by glycosuria, yet we do not call them diabetes. We have then to inquire what criterion exists for the identification of true diabetes as apart from such conditions of symptomatic glycosuria and the question is not easily answered. It would seem that our only grounds in most cases for asserting that a patient is suffering from diabetes are the amount and the persistence of the glycosuria. It is manifest that such criteria are unsatisfactory. Taken separately each would be fallacious. A considerable quantity of sugar may exist at any one time in the urine apart from diabetes. I well remember a patient having been brought into Charing Cross Hospital one night comatose, with a fairly large amount of sugar in the urine. He was supposed to be suffering from diabetic coma and was treated somewhat energetically by bleeding and infusion of saline solution. At the necropsy the case was found to be one of cerebral hæmorrhage, yet the quantity of sugar in the urine had been considerable. On the other hand, if permanency of the glycosuria is to be the necessary condition for distinguishing diabetes we should be unable to admit that a case could ever be cured, nor could the condition be satisfactorily diagnosed until the patient was dead. The old Greek proverb that we should call no one fortunate till he was dead, because a reverse of luck might at any time occur, was perhaps a wise piece of advice, but it would be unsatisfactory in medical practice, where it would sometimes seem that the assignment of a name to a disease is only less gratifying to the patient than its cure or alleviation. We cannot base the definition of a disease upon its insusceptibility of cure. And if we ask how long the glycosuria must last before we can call a case diabetes it is not easy to give an answer. Yet in diabetes, in the absence of any ascertained morbid anatomical changes invariably associated with the disease, we seem compelled to rely for grounds of diagnosis and even of definition upon the amount and persistence of the glycosuria. How unsatisfactory this is will be readily apparent when we consider what our position would be if we knew only the fact of the existence of albumin in the urine in certain conditions, without possessing any knowledge of structural changes in the kidneys, or if we were similarly limited in our knowledge in the presence of hæmaturia. We might perhaps get as far as recognising the existence of mild "functional" conditions in which the disorder cleared up without difficulty and grave cases of organic disease which rapidly went downhill—and that is about as far as we have got in the study of diabetes—but exact knowledge would be quite impossible.

As a sign of the present unsatisfactory results of attempts to define diabetes it is sufficient to indicate the conditions at present grouped under the term. Tyson gives the following varieties of glycosuria to all of which the name diabetes is sometimes applied, arranged according to their causes: (1) alimentary glycosuria due to imperfect assimilation of carbohydrates; (2) glycosuria due to over-production of glucose from the hepatic glycogen; (3) vaso-motor glycosuria, owing to too rapid passage of glucose through the liver, without being converted into glycogen; (4) defective oxidation of glucose in the system (this form he associates with pancreatic and suprarenal disease); and (5) incurable diabetes, in which proteid is converted into sugar, including the fixed proteid of the tissues (this is accompanied by acid intoxication). The group of disorders included in this list is manifestly made up of a heterogeneous collection of but slightly connected conditions which only our ignorance of the nature of the phenomena leads us to classify under the same term. It seems possible that some at least of the obscurity in which the subject of diabetes is wrapped arises from a failure to distinguish the disease from conditions which stimulate it and that we must here apply the old maxim *divide et impera* and subdivide the group before we can extend the realm of knowledge.

Alimentary and composite diabetes.—In this direction an important division has been made in the subject by the distinction drawn between two forms or stages of diabetes mellitus—between cases on the one hand in which apparently the sugar which emerges in the urine is derived entirely from the carbohydrate materials contained in the food and cases in which, on the other hand, some of it, at all events, is formed by breaking down of the tissues of the patient. To these the names of "alimentary" and "composite" diabetes have been assigned by Pavy. This brings us to one of the remarkable points about the disease to which it is, perhaps, curious that more attention has not been paid. In many instances the first stage of the malady signalised only by an alimentary glycosuria—that is, by an apparent inability to assimilate any considerable quantity of carbohydrate food. In the later stages the same patient not only cannot assimilate this kind of food but he also suffers from an actual breaking down of his own tissues into sugar. It is difficult to believe that the two conditions are the same in any way or that one can really pass into the other. To suppose that the presence of excess of sugar in the system acts poisonously and leads in time to a destruction of the body cells, of such a nature that the very poison at work is one of the products of the disintegration, is absolutely contrary to all analogy in vital chemistry. In cases in which special bodies are formed in the animal economy in response to the injection of toxic materials we find that the substance is of such a nature as to neutralise the effects of the poison, as in the process of immunising animals against certain vegetable poisons (abrin, ricin, &c.) or against the toxins of bacteria. In the case of the commoner poisons, mineral and organic, no such antitoxic power is, indeed, exhibited; but no instance of the actual poison itself being formed by the cells as a result of its own action is known. It is unlikely, then on general grounds that sugar should form a special exception and cause breaking down of the cell protoplasm into sugar. There is indeed, no proof, so far as I am aware, that it is actually a poisonous substance. It appears to be a normal constituent of the blood, though existing there in very small quantities; and in default of direct evidence we should suppose that the only evil effects which it would be likely to exert would by increasing the density of the plasma and thereby altering the osmotic pressure relatively to the surrounding tissues and to the formed elements of the blood.

The facts just mentioned—namely, the existence of alimentary and composite forms of diabetes—appear to constitute the ground-work of our knowledge of the disease, in which everything else is largely a matter of speculation and conjecture. We know that in the early stages of many cases of diabetes it is possible entirely, or almost entirely, to prevent the appearance of sugar in the urine by diminishing the amount of carbohydrate material given in the food. The inference seems necessarily to be that the sugar in the urine is derived directly or indirectly from the matter ingested. On the other hand, we know that in severe cases and in the later stages of many cases which originally appeared to be instances of alimentary diabetes the sugar in the urine persists in the absence of all carbohydrate food—nay, more, in conditions of starvation, in the absence of all food of any kind whatever. Here it is equally necessary to believe that the sugar is derived from the breaking down of some substance forming part of the living body. These being the two most securely established facts with regard to diabetes it is, I venture to think, to the explanation of them and of their mutual relationship that it is most important to direct attention in any attempt to explain the nature of the disease. It is comparatively useless to explain one phenomenon without explaining the other simultaneously; any hypothesis which fails to embrace both together is defective *ab initio.*

It is necessary, then, to look about for some explanation of the phenomena of diabetes capable of embraçing both alimentary and composite cases. Now we know that sugar may appear in the urine in many conditions which are not diabetes as a result of ingestion of saccharine food. On the other hand, we know of no other condition in which there is an internal formation of sugar by disintegration of materials existing in the body. Further, this latter feature is characteristic of the developed disease, when all the conditions are presumably best marked. It appears, then reasonable to regard this internal formation of sugar as the essential characteristic of the disease and to turn our attention specially to this rather than to the alimentary factor. So far as I can judge the reverse procedure has generally been adopted in studying the disease and the result has been to leave what I believe to be the most striking feature of diabetes mellitus unexplained.

We have to ask, then, is it possible to formulate any hypothesis, consistent with what we know of the phenomena of diabetes, which shall explain alimentary diabetes in terms, if I may so express it, of composite diabetes? Now it may be taken as admitted that the sugar which appears in the urine is merely filtered off from the blood—in other words, that glycosuria presupposes glychæmia. The sugar present in the blood may arise in any one of several ways—from increased ingestion of sugar in the food or from increased formation in the body, or from diminished elimination or assimilation of the amount normally present. In alimentary glycosuria it would seem that the sugar reaches the blood by absorption from the intestine; in composite diabetes it seems that some of it comes from the breaking-down of the tissues. Have we any means of assuring ourselves that in either case only one process is at work? In the case of the latter condition it seems certain that there is no alimentary element coexisting, since in starvation no food is taken. In the former case the same exclusion is not possible. It is true that in alimentary glycosuria cutting off the supply of carbohydrate food will stop or diminish the exit of sugar in the urine, but this does not necessarily constitute a proof that such food is the sole source of the sugar. The coexistence of an internal source of sugar formation cannot be excluded. Indeed, Seegen states that dieting in some instances may decrease the sugar which appears in the urine but not that which exists in the blood. Now the amount of sugar present in the blood is the resultant of the forces which respectively pour sugar into it and remove it, and sugar may be removed by assimilation as well as by excretion. It is conceivable that the body may have the power of dealing with a certain quantity of this substance but not with more than a definite amount. If the whole of this amount is formed within the body it is clear that any further quantity entering from the intestine will appear in the urine ; while if a large proportion, but not the whole of the amount is formed within the body then the quantity of sugar which can enter from the intestine without causing glycosuria will be so much less than in a normal person who either forms no internal sugar or only a comparatively small amount. I venture to think that this possibility is at least worth considering as involving less difficulty in the explanation of the conversion of a case of alimentary glycosuria into one of composite diabetes than is involved in the supposition of the onset of a new pathological process. In favour of an internal formation of sugar in diabetes may be quoted the observations of Kolisch that in bad cases a carbohydrate diet may cause no increase in the amount of sugar present in the urine which may vary from day to day quite independently of the food taken. If such a conception were admissible a certain amount of clearness would be gained for a definition of diabetes which would consist in an increased internal formation of sugar. In mild cases this would merely diminish the amount of sugar which could be absorbed from the alimentary canal without appearing in the urine ; as the case grew graver and more internal secretion was formed, so the patient's tolerance for carbohydrate food would diminish ; and finally, the amount of internal sugar would be so great as to appear in the urine even in the absence of any alimentary supply.

It is not necessary to suppose that the amount of sugar which can be dealt with by the tissues without appearing in the urine is the same in all persons. Thus von Noorden found that of two healthy men one was capable of assimilating 150 grammes of glucose administered to him, while the other exhibited slight glycosuria when thus treated. Probably if enough sugar were given at once everyone would excrete some of it in the urine. Those who cannot deal with so much as average persons are the alimentary glycosurics ; but there is no reason why they should develop into diabetics apart from an increased internal sugar formation and as a fact they do not all so develop. The power of assimilating sugar varies, even in the same person in different circumstances, as a man who is working hard will eliminate less sugar in his urine, as the result of an overdose of this substance, than one who is at rest (Breul). Authors appear to differ as to whether carbohydrate food, other than sugar itself can produce alimentary glycosuria in healthy persons. Theoretical considerations would appear to be on the side of Naunyn and others who affirm this possibility, since it is fairly established that a certain proportion of starchy food is converted into sugar in the alimentary canal (Ellenberger and Hoffmeister). In pathological conditions, such as fevers and alcoholism, it has been actually proved by Strauss that glycosuria may result from the ingestion of starchy food.

CAUSATION.

Leaving for the present the question of the essential nature of diabetes, we may turn our attention to the causation of the disease. With regard to the causes which determine the onset of diabetes nothing new seems to have been revealed by recent research. We may not now agree with Avicenna that the most important of these causes is the eating of quinces, or with Trnka de Krzowitz that "aquosi potus, ac praeprimis tepidi abusus haud difficulter diabetem inducit," * any more than with the

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* This appears to refer to polyuri a potu, not to saccharine diabetes.

supposition of the Rabbi Moyses that the drinking of Nile water was the most potent cause of the malady as he saw it in Egypt, but our positive knowledge is not much greater than that of early writers. The association of the disease with alcoholic habits was noticed by our forefathers in the medical profession. Dolæus attributes the onset of diabetes to drinking cyder and Willis to indulging in Rhenish wine, and there seems to be no doubt that alcoholism may play a part in its causation.

Another poison to which some importance has been attributed in the causation of diabetes is tobacco. Stern states that not only does the excessive use of this narcotic protract the duration of an alimentary glycosuria and increase the quantity of glucose in the urine but that it seems to transform slight chronic glycosuria into severe diabetes. He attributes the action of tobacco to the absorption of small doses of carbonic oxide in the process of smoking, sufficient to induce a chronic intoxication with this substance. This theory seems scarcely probable; for, although it is known that poisoning with carbonic oxide may be accompanied by glycosuria, one would think that the amount of this gas absorbed by the mucous membrane of the mouth would be insignificent. It is only in the case of those who inhale the smoke that such a cause would appear likely to be operative. Perhaps some of the deleterious effects attributed to cigarette smoking may result in this way; but I do not know of any observations tending to connect diabetes with this form of indulgence in tobacco more than with any other. Lorand notes that some of his diabetic patients confessed to being large smokers of cigars.

The presence in the urine of glycuronic acid—a near ally of sugar—has been observed after intoxication with a large number of substances: phosphoric acid, phosphorus, lactic acid, hydrochloric acid, strychnine, curare, arsenic, butylchloral hydrate, morphine, hydrocyanic acid, chloroform, and turpentine (Sydney Martin). To the form of diabetes which follows phloridzin poisoning and the injection of suprarenal extract I shall refer later.

The influence of heredity is perhaps now more fully recognised than was formerly the case. Thus, Tyson puts the hereditary cases down as one quarter of the whole number and other writers at an even higher figure; and with heredity we must class the racial incidence of diabetes which seems to affect a larger percentage of the population among the Jews and Oriental peoples than among Europeans. The greater liability of Jews than of other races to suffer from diabetes has indeed been denied by Pollatschek, and statistics on the subject are liable to be fallacious, but on the whole the fact seems well established. Thus Lorand has collected statistics from his own native town, in which there are 20,000 inhabitants; of these 3000 are Jews. He finds that diabetes is rare among the Christian population but so common among the Jews that there is scarcely a family of any size which has not among its members some sufferer from this malady. This same writer has investigated the question whether the children of diabetic parents are liable to suffer from alimentary glycosuria and thinks that the question can be answered in the affirmative—a consideration which may lend some further support to the belief in the hereditary character of the disease. But the evidence adduced is not quite convincing as to the existence of this phase of heredity in any large number of instances.

In spite of the well-established fact of the appearance of diabetes as a sequel of an attack of some infectious disease, such as enteric fever, influenza, or diphtheria, little evidence exists which seems in any way to point to an infective cause of diabetes itself—that is to say, there is nothing to indicate that it is the direct effect of a toxin formed by a pathogenic bacterium. The experiments of Charrin and Carnot, in which diabetes was produced by injection of cultures of microorganism into the pancreatic duct, must be explained on the ground of the production of a pancreatitis rather than as proving the origin of diabetes from the direct effects of toxins. The action of syphilis as a cause of diabetes is probably exerted in the same direction. Schmitz examined the records of 4389 diabetic patients and among them he found only four married couples; from this it would appear that the disease is not communicated from one individual to another. On the other hand, some writers maintain that conjugal infection in diabetes is not at all rare. The evidence has been recently collected by Hutinet who considers that the infection may be conveyed by the saliva; he admits, however, that this form of diabetes is less severe and more amenable to treatment than other kinds. General experience hardly bears out the contention that the malady is infectious.

Lastly, much attention has been directed to the influence of the nervous system in the causation of diabetes. On the one hand, overwork and consequent exhaustion may apparently induce the disease, as in the case of the youth long ago recorded by Boerhaave, who applied himself to his studies night and day, keeping himself awake by continual potations of tea and coffee. (Noctes diesque studiis incumbebat: somnum arcebat continua pocillatione theae atque caffeae.) This cultivation of the intellectual faculties to the neglect of hygienic principles was followed by the onset of diabetes. To this as an example of diabetes from overwork it might perhaps be objected that the tea and coffee drunk may have acted as poisons so as to bring the case into the toxic category, but subsequent experience seems to support the belief that mental strain may be a factor in inducing the disease. The incidence of diabetes upon the Jews has been by some attributed to the anxieties incident to the callings which they tend to adopt. Sudden shock and excitement have also been quickly followed by the onset of diabetes—*pathemata animi, præsertim terror*, as the Trnka de Krzowitz phrases it; and present-day observation bears out the dicta of our predecessors in this respect.

Injuries to the head are more often followed by temporary glycosuria than by lasting diabetes but the latter is said to ensure occasionally. Von. Oordt noted the presence of alimentary glycosuria in many cases of cerebral disease and Haedke observed this phenomenon in 15 cases out of 25 suffering from shock. Hirschfeld found that the glycosuria seen in cases of injury to the skull was only transitory but Lenné states that in certain instances it may remain permanent.

Experimentally many varieties of injury to the nervous system may produce glycosuria. Besides Bernard's "puncture" and his operation of galvanising the central ends of the cut vagi, destruction of the pons and of the posterior crura cerebri, section of the optic thalami, section of the medulla and of the cervical cord, extirpation of the cervical sympathetic, and other lesions have been followed by glycosuria. Stimulation of the depressor nerve has had the same effect and even section of the sciatic has done the same. Sciatica itself has been stated to cause diabetes but it is at least as probable that the nerve lesion was caused by the general disease as that the opposite sequence took place. An experiment illustrating the effect of nervous influence upon the excretion of sugar is seen in the experience that if a cat be merely fastened down upon the operating table, without any further injury, sugar at once appears in the urine, the so-called "*Fesselungsdiabetes*" of the Germans (Boehme and Hoffmann.)

Connected with the question of the nervous causation of diabetes is the discovery that glycosuria is common among the insane. It is said to occur more frequently in patients suffering from depressive forms of mental disease than among the more active varieties, which would suggest that in such cases there may be a failure either in the power of utilising sugar in the tissues or in the formation of some necessary secretion rather than an active production of sugar such as would seem to occur in the other nervous conditions which have just been mentioned. We must also bear in mind the hereditary nature of diabetes and its apparent tendency to appear in the offspring of neurotic stocks, other members of which have exhibited signs of more or less marked mental disease.

On the other hand, it is certain that only a small number of those persons who are exposed to the action of the causes just enumerated—continued hard work, shocks, and injuries—suffer from diabetes in consequence, and it is equally certain that the disease often occurs without the aid of any of these exciting causes. It is legitimate, I think, to question the reality of the causal nexus in some at least of the cases attributed to mental factors. It is difficult to be sure that we are not confusing *post hoc* with *propter hoc* in many such instances. Thus in the case of injuries and shocks it is to be borne in mind that these accidents cause patients, previously healthy in their own estimation, to seek medical advice. The urine will then be examined, and whether a temporary traumatic glycosuria be found or a pre-existing diabetes be discovered the case is likely to be looked upon as one of diabetes following injury. Again, in cases of diabetes which come under notice with the disease already developed the onset may be wrongly attributed by the sufferer, when questions are asked, to one or other of the nervous causes mentioned, and he may hence be classified as an instance of nervous diabetes when the malady was really due to some entirely different cause. There are at least few hospital patients who have not suffered from some injury in their past lives and who are not only too ready to associate any subsequent ailment with such an accident, just as every child belonging to this class who is ill has always had a fall to which maladies of the most varied description can be assigned. Hence I am inclined to think that a certain amount of scepticism is justifiable as to many, at all events, of the cases attributed to such causes.

With a view to estimate as far as possible the frequency with which the various causes are at work in cases of diabetes, or at least in cases so classified—for as previously suggested I think that, with only one symptom to guide us, many different conditions are grouped under this term —I have looked up the notes of such cases of the disease as have been treated in Charing Cross Hospital in recent years. It must be admitted that hospital patients are not an ideal class in which to investigate the matter. Such as they are I have found notes of 80 cases, of which 56 were males and 24 females (a ratio of 7 to 3).

To take first the class of causes just mentioned I found that in only two cases was the onset of the disease attributed to worry and anxiety, while in one case a shock and in one a fall were assigned as causes (5 per cent.). The most important antecedent, so far as could be gathered from a consideration of the histories of the patients, was alcoholism, which was a precedent condition, if not a cause, in no less than 13 cases, or 16 per cent.; but we must remember that it is a common failing and may be only accidentally associated. Syphilis had certainly occurred previously in six cases and probably in four others, making 12½ per cent. in which it might be assigned as a cause of the malady. Gout was an association in five instances. If Toogood's observations as to the causation of gout among the poor are to be relied upon these cases also might be attributed to the effects of indulgence in alcohol. With regard to heredity, there were six cases (two females and four males) in which other members of the patients' families had suffered from diabetes. The most striking instance was that of a man, aged 50 years, who had two brothers and one sister either suffering from or dead from diabetes. In each of the other instances only one other member of the family had been affected.

In four cases (two males and two females) there was a family history of insanity or nervous disease. Taking them altogether, heredity was only discoverable as a possible causal factor in 12½ per cent. of the whole number, a much smaller proportion than is assigned to this cause by the writers whom I have previously mentioned. In the great majority of the cases no explanation of the onset of the disease was given by the sufferers. It had come on insidiously and as far as could be gathered spontaneously. Here, perhaps I may remark upon the large number of instances among these cases in which complaint was made of abdominal pain—generally epigastric or hypochondriac. In one or two instances intestinal disturbances, such as diarrhœa and vomiting, had preceded the apparent onset of the diabetes sufficiently closely to attract the patient's notice and in three other cases jaundice had occurred at some previous period. These features may not be without interest in view of the possible connexion of diabetes with pancreatic disease.

MORBID ANATOMY.

I now turn to the morbid anatomy of the disease, the changes found in the different organs of the body in those who have died from diabetes. Ever since Cladue Bernard's great discovery of the existence of glycogen in the liver and of the possibility of causing this substance to be discharged into the blood in the form of sugar by nervous action, the liver has received the greatest amount of attention in relation to the pathology of diabetes mellitus. Yet it can hardly be denied that the result has been on the whole disappointing. It must have seemed at first that there was at length a prospect of solving the mystery of this disease which had remained "a marvel" since the time of Aretæus. But although it seems certain that many cases of glycosuria, especially those which ensue as results of nervous, lesions, are referable to this mode of causation, we are apparently as far as ever from explaining on this basis the nature of diabetes. It even seems legitimate to wonder whether we have not been unduly hypnotised by the phenomena of glycogenesis and led to concentrate our attentien upon a side issue.

The facts ascertianed with regard to the presence of glycogen in various tissues seem to point to its constituting a reserve of nutriment for actively growing cells. Thus it is found in the cells of tumours, in germinal tissues, in the proliferating membrane of hydatid cysts, and sometimes in leucocytes. It appears to be associated with activity in the cells which contain it. May it not be the case that it is stored up by the liver cells when it, or some forerunner of it, reaches them from the food, as a fuel for their own activity which is evidently great and manifold, rather than as a reserve upon which the body at large may draw? Pavy's researches seem to show that the blood of the hepatic vein is no richer in sugar than that of the rest of the blood instead of containing more sugar as it should do if the liver were constantly furnishing sugar for the use of the body cells elsewhere. In short, the function of the liver as normally a distributor of sugar to the rest of the body is at present an unverified hypothesis.

Post-mortem examination of persons dead from diabetes reveals two main changes in the liver. In a certain proportion of cases this organ is found fatty. Thus many years ago Mead considered a "steatomatous" condition characteristic of the liver in diabetes and this phenomenon has often been noted since. But it is not invariable; indeed, it is rather the exception than the rule to find it present. In a majority of cases the liver is slightly enlarged, firm in consistency, and hyperæmic. The general impression derived from a consideration of these features is that the liver is an organ which has been working hard; the appearances do not suggest a morbid state. A peculiar lesion of the liver in diabetes has, indeed, been described by Fischer who found in a case of this disease owing to the power possessed by the avian kidney of retaining sugar and refusing to allow its passage. If phloridzin be given to a bird in such condition sugar immediately appears in the urine, apparently owing to injury to the renal epithelium. Other substances which injure this structure may produce the same results. The occasional glycosuria seen in case of Bright's disease has been attributed to a similar injury to the cells of the kidneys; but it appears, on the other hand, that the existence of renal disease—either natural or experimental—may prevent the appearance of glycosuria in phloridzin poisoning (Klemperer, Richter). It is further clear that though injury to the renal epithelium may account for some of the glycosuria seen in phloridzin poisoning it cannot do so for all, since a much larger amount of sugar issues in the urine than normally exists in the blood. The drug must itself give rise to some increased formation of sugar. The acid intoxication coexisting must also be accounted for. It is noteworthy that observers differ in their findings as to the amount of sugar present in the blood in animals poisoned with phloridzin some finding a condition of glychæmia, others a normal amount of sugar, others again a variable quantity which may exceed or fall short of the normal. It is also difficult to explain the fact that pholoridzin may produce glycosuria if transfused through a kidney locally. Pavy, Brodie, and Siau consider that phloridzin acts upon some substance already existing in the blood and converts it into sugar. It would seem necessary to suppose that it produces excess of this intermediate substance in the blood by its own action.

The administration of phloridzin is followed by intense fatty change in the liver which may be compared with the fatty conditions sometimes seen in cases of diabetes. Some very interesting experiments were made by Rosenfeld to determine the source of this fat. By starving animals (dogs) for some time it is possible to get rid of practically all the stores of fat existing in their bodies. If now such starved animals be fed on some fat of a different kind from that normally present in their tissues they store up the new form of fat instead of the ordinary kind and it is possible by chemical tests to demonstrate the difference. If then to an animal thus treated, containing abnormal fat in its adipose tissues, a course of phloridzin be given and the fat in the liver resulting from the treatment be analysed, it is found that the fat of this organ consists of the extraneous fat, not of normal canine fat. The clear inference is that the fat found in the liver is not a fatty degeneration in the ordinary sense, in which the fat is derived, or is supposed to be derived, from breaking-down of the substance of the liver cells, but that the fat is brought to the liver by the blood and is merely ingested by the cells from the fluids surrounding them. As a result of Rosenfeld's experiments, which have been adequately confirmed by other observers, considerable doubt is thrown on the commonly accepted views on fatty degeneration. So far no connexion has apparently been drawn between the fatty condition of the liver and the glycosuria, but it seems not impossible that such a connexion does exist. I shall hope to allude to this side of the question later in my third lecture. In any case the condition produced by phloridzin is almost exactly the same as that seen in diabetes, in respect to the condition of the urine, to the acid intoxication, and to the fatty state of the liver; and arguments drawn from its peculiar features may be applied to the human disease.

Nervous system.—The connexion of the nervous system with diabetes has already been alluded to in so far as nervous influences may be effective in determining the onset of the disease. It seems, however, rather the exception than the rule to find any recognisable lesions of this system after death in cases of true diabetes. On the other hand, patients dying from cerebral lesions may exhibit glycosuria up to the time of their deaths. In a certain number of cases classed as diabetes, tumours or other affections of the medulla have been found post mortem. It is at least open to question whether these cases should not rather be described as instances of persistent glycosuria than of diabetes, death being assignable to the cerebral lesion rather than to any nutritional disturbance. Apart from such lesions the changes met with in both brain and spinal cord are most easily explained as secondary changes due to the general wasting and intoxication; such are the atrophy of the convolutions, the widening of the perivascular spaces, the local cysts, the œdema of the membranes, and the dilatation of the ventricles and iter (Dickinson). The localised hæmorrhages sometimes found are analogous to the retinal hæmorrhages characteristic of diabetes and the atrophy and sclerosis of some of the spinal cord are comparable with the somewhat similar condition which occurs in pernicious anæmia and are due either to malnutrition or to intoxication. The neuritis which may be met with in the peripheral nerves is also almost certainly due to the general intoxication and is comparable with the neuritis produced by alcohol, a substance very closely alied to sugar, by fermentation of which it is generally produced, but it may equally be due to some secondary intoxication or infection rendered possible by the debilitated state of the tissue. Changes in the sympathetic system are also probably secondary and not causal.

The stomach.—The causation of diabetes was assigned to the stomach by some of the older writers. Thus, Lister placed the defect in this organ and Rollo, who wrote a careful account of the malady, attributed it to excess of gastric fluid, along with some alteration in the quality of the secertion, by which sugar was formed in the organ. There is, however little or nothing to connect diabetes with gastric disorders so far as morbid anatomy is concerned. It is true that Joneways and Ortel described a case associated with acute gastritis, but this was almost certainly secondary and due to a terminal infection. In most cases the stomach appears to do its work admirably as is proved by the absence of digestive disturbances in spite of the large amounts of food taken. A form of "dyspeptic glycosuria" has, however, been described by Robin in which the sugar appears in the urine only during digestion. The stomach is found dilated and there is hyper-acidity of the gastric juice; the liver may be slightly enlarged. The patients suffer from neurasthenia and there is phosphaturia along with the glycosuria. According to Robin the condition may pass into true diabetes. It seems more natural to connect the condition with the neurotic condition of the sufferers, since diabetes, or at least glycosuria is not infrequently noticed to accompany neurasthenia, than to suppose any special form of the disease.

The skin.—Apart from the various secondary lesions of the skin due to invasion of pyogenic, organisms such as boils and carbuncles and the local effects of saccharine urine or its decomposition products seen in the neighbourhood of the urethral orifice, there are two conditions of the skin which are said to be specially connected with diabetes mellitus. These are psoriasis and xanthoma The nature of neither of these is fully understood. Xanthoma appears to be due to a special form of fatty degeneration of the cells of the corium and may, perhaps, be brought into line with the other instances of fatty change already alluded to. Psoriasis has been variously attributed to the presence of an undiscovered organism—as suggested by the ring-shaped lesions of the disease—and to a toxin or dyscrasia. If the former explanation be true—but so far there is no proof of such a cause—its association with diabetes might be similar to that of the pyogenic affections. If, on the other hand, it is toxic it may be due to the same cause which produces the glycosuria or may be produced by the presence in the skin of sugar or some allied substance. It is noteworthy that among 25 cases of psoriasis Nagelschmidt found eight instances of alimentary glycosuria: whereas among patients suffering from other diseases of the skin who happened to be in hospital at the same time no instance of this condition occurred. Pick, however, denies that alimentary glycosuria is frequently found in patients suffering from psoriasis. The question therefore seems still undecided. It has, however, very little bearing on the nature manifestations of true diabetes.--*Lancet*, April 8, 1905.

Acknowledgments.

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MEDICAL RESEARCH INSTITUTES OF INDIA.

We are glad to find that the agitation in the British Parliament and the medical press in connexion with the fearful mortality in India from plague and other diseases, has borne fruit. After having spent millions on durbars, memorial institutes and divers other projects of doubtful utility, our Government have at last turned their attention to the miserable condition of this country, and have issued a scheme for the provision of more adequate means for the scientific study of the etiology and nature of the diseases that are devastating this vast territory. We publish below the Home Department Resolution of the Government of India in which this scheme has been promulgated. It is a short official order and has been framed with great tact. As the subject is of vital importance to the people of this country, who are completely at the mercy of their governing body, we propose to say a few words on it, in the hope that the scheme may be placed in the hands of really able men, patient in research and successful in avoiding errors, and be worked out in a proper spirit, and thus become the means of arresting the virulence of, if not of stamping out, some of the fruitful sources of death in tropical regions.

The resolution sets out with the remark that the necessity for a scientific study of the causes and nature of the virulent diseases prevalent in this country has recently attracted the attention of the Government of India, that various plans have been discussed from time to time, but that financial and other difficulties have hitherto prevented the adoption of a complete scheme; "while there has lingered a doubt whether, in the peculiar circumstances of this country, it would be possible to make India self-supporting in medical and sanitary research."

The germ theory of disease, on which the scientific study of its origin and character is now mainly based, owed its origin in the sixties of the last century to the investigations of scientists, such as Pasteur, Davaine and Koch. When this theory was beginning to obtain currency in Europe, and cholera was causing dreadful havoc in this country, the Government of India did not content themselves with merely discussing plans, but sent Drs. Cunningham and Lewis, who had then distinguished themselves at Netley for their proficieney in bacteriology, to Germany to study the fungoid theory of the causation of cholera. In those days the part played by microbes in the production of disease was not much known, and theories thereon which have since revolutionized medicine, were laughed at and derided. On the arrival of these officers in India, they were nevertheless placed on Special Duty to investigate the subject. Since 1871, these officers were incessantly at work with some of the deepest problems with which the practical physician and the sanitarian are concerned; and, though supplied with inadequate means, they produced results which obtained the approbation of the scientists of Europe. We give below a list of some of the publications in which accounts of their elaborate joint researches were embodied :—

1. Reports of Micoroscopical and Physiological Researches into the nature of the Agent or Agents producing cholera—First and Second Series.

2. The Soil in its relation to Disease.
3. The Fungus Disease of India.
4. The Oriental Sore as observed in India.
5. Leprosy in India.
6. Cholera in its relation to certain physical phenomena.

"All or nearly all of these contributions," to quote from a Government letter of July 1898 issued under the signature of Mr. J. P. Hewett, then Secretary to the Government of India, Home Department, now a Member of the Viceroy's Executive Council, "are classical, and have rendered the names of *their authors* familiar to students of tropical hygiene, and of tropical medicine."

From the time of Dr. Lewis' death, Dr. Cunningham had to carry on single-handed the researches in physiology and pathology. A list of his chief contributions down to 1889 will be found in this Journal for January 1896. In 1879, Dr. Cunningham was appointed Professor of Physiology in the Calcutta Medical College in addition to his special duty, and he occupied this post continuously for more than eighteen years. "He was the first Professor in India to demonstrate histological preparations to the students in a systematic way, and also the first to teach them the practical use of the microscope." In 1884 Dr. Cunningham was employed to enquire into the controversy then raging regarding the significance of Koch's great discovery of the comma-bacillus. His enquiry on the subject was most careful and thorough, and "the results of his labours," to quote Mr. Hewett again, "have added to his reputation among scientists throughout Europe." In 1894 he published the results of his investigations connected with snake-bite. Here also "he has been successful in clearing away many serious errors." We may add that the parasites which Leishman first found in the year 1900 in the spleen of a soldier invalided to England from Dum Dum, had been discovered by Dr. Cunningham in Delhi boil, and described by him in an official publication so long ago as 1884, and that Dr. L. Rogers has therefore suggested very properly that they should be known as the

Cunningham-Leishman-Donovan bodies. These and other researches have obtained for Dr. Cunningham the Stewart Prize of the British Medical Association, and the Fellowship of the Royal Society, and forced the Government of India to recognise him as "one of the most distinguished of the scientific men who have served them."

Yet when in 1895 the Government of India were awakened to the importance of bacteriological research and determined to establish an Imperial Laboratory in India, the eminent services of Dr. Cunningham were altogether ignored, in favour of Mr. Haukin, a young man who had recently been appointed Chemical Examiner and Bacteriologist to the Government of the North Western Provinces and Oudh, and whom the Government of India considered to be "eminently fit" "for the charge of the Imperial Laboratory and for the work of training the officers who may be attached to it." This supersession of a man who was not only a highly trained expert in bacteriology of long standing, patient in research, pains-taking in his labours, and independent in opinion, but was also a physician and a physiologist of the first rank, evoked the surprize and indignation of the medical profession in India, and caused such a hue and cry in Europe as to compel the Government to withdraw their order. The whole of this question was elaborately discussed by the late learned Editor of this Journal in its number for January 1896, when he availed of the occasion to recommend that "as one laboratory cannot possibly meet the requirements of all India, separate laboratories should be established at least at Agra, Bombay and Madras."

It is unaccountable why so important a scheme which was cut and dry in 1896, and which might have saved innumerable lives, was allowed to go to the wall till now. It is a good fortune for India that the scheme has been revived in a better form, though late in the day. It consists of a Central Research Institute at Kasauli, near the summer retreat of the Government of India, and of a laboratory at the head quarters of each provincial Government. The functions of the Central Institute will be original research connected with the medical sciences, the preparation of curative serums for the diseases of man, and the training of scientific workers. It would perhaps have been better if the Institute had been in proximity to a Medical College. Dr. Cunningham seems to have done more work single-handed when attached to the Calcutta Medical College than what he did jointly with Dr. Lewis when not so attached. We may add that in the oration which Mr. Henry Morris delivered at the last annual *conversazione* of the Medical Society of London, he stated that the founding of an Institute of medical sciences for research, in association with the University of London alone, or with it in conjunction with the two Royal Colleges, would afford better opportunities to research workers to acquire skill and technique. The provincial laboratories will provide expert assistance to the local medical and sanitary officers, and also offer facilities for prosecuting original research as far as practicable.

The Government of India hopes that when the new scheme is developed, it will " be possible to make India self-supporting in medical and sanitary research," and that "it should no longer be necessary for officers to go from India to Europe to study the bacteriology and parasitology of tropical diseases, and it may be expected that workers from Europe will seek Indian laboratories to avail themselves under competent direction of the unrivalled material for study which the diseases of the country afford." We cannot say how far this high hope will be realized. The peculiar circumstances of this country offer obstacles in the way of really scientific men to carry on their researches. We hope however for the best in future.

In the absence of a scientist of the Cunningham type, the selection of the first Director of the Central Research Institute appears to be a judicions one. Lieutenant-Colonel Semple seems to be an officer of high scientific attainments and an earnest student of bacteriology in all its branches, having been Assistant Professor of Pathology of the late Army Medical School at Netley for more than five years. He is also said to have the rare gift of imparting his knowledge in the clearest manner and of making his subjects interesting. His successful administration of the Pasteur Institute of India, is also in his favour.

GOVERNMENT RESOLUTION DATED SIMLA THE 8TH JUNE 1905.

A scheme for the provision of more adequate means for the scientific study of the etiology and nature of disease in this country has recently occupied the attention of the Government of India. From time to time various plans have been discussed, but financial and other difficulties have hitherto prevented the adoption of a complete scheme; while there has lingered a doubt whether, in the peculiar circumstances of this country, it would be possible to make India self-supporting in medical and sanitary research. The financial difficulties, happily, have disappeared; and the brilliant work done in the past by some of their officers in circumstances of great difficulty, and the successful administration of the Pasteur Institute at Kasauli, lead the Government of India to hope that if the means are supplied they will obtain from among their officers a staff of scientific workers worthy of the problems that confront them. When the new scheme is developed it should no longer be necessary for officers to go from India to Europe to study the bacteriology and parasitology of tropical diseases, and it may be expected that workers from Europe will seek Indian laboratories to avail themselves under competent direction of the unrivalled material for study which the diseases of this country afford.

In brief outline, the scheme of the Government of India comprises the establishment of a central research institute at Kasauli and a laboratory for scientific medical and sanitary work at the head-quarters of each provincial Government. The functions of the central laboratory will be original research, the preparation of curative sera for the diseases of man, and the training of scientific workers. The functions of the provincial laboratories will be primarily the provision of expert assistance for the provincial medical and sanitary officers, but the superintendents of these laboratories will be encouraged, so far as oportunities allow, to prosecute original research.

The Central Research Institute will be located at Kasauli which possesses advantages over any other place which has been suggested to the Government of India. Kasauli has a temperate climate, is easy of access by rail, is the site of the Pasteur Institute (while there are large hospitals at no great distance) and is conveniently near the head-quarters of the Government of India and their Sanitary Commissioner, under whose administrative control the Director of the Institute will work.

Most of the provincial laboratories are already in existence, although some of them must for the present undertake work which will be carried on elsewhere when the general scheme is mature. At Guindy there is the admirable institute called into existence by the efforts of Lieutenant-Colonel King, after whom it has been named. Here, in addition to general research work, vaccine lymph is prepared, and it may be considered desirable by the Government of Madras to manufacture curative sera also. At Bombay the plague research laboratory will eventually become the provincial bacteriological laboratory; but during the persistence of plague the manufacture of the prophylactic will be continued there as well as research in connection with the disease. In Bengal there is a bacteriological laboratory attached to the pathological department in the Medical College, Calcutta. In the United Provinces there is Mr. Hankin's well known laboratory at Agra where bacteriological and medico-legal work for the United Provinces and Central Provinces is carried on. In Burma a similar laboratory is about to be opened at Rangoon. In both cases, eventually, separate arrangements for medico-legal work will be made. In the Punjab no bacteriological laboratory has as yet been provided, and, for the present, the Government of India think that the Pasteur Institute at Kasauli may suitably undertake routine work for that province on such terms as may be arranged.

The Pasteur Institute at Kasauli, with the exception noted above, and the antirabic institute about to be opened at Coonoor in Southern India will be restricted to work in connection with the prevention of rabies.

The scheme has the approval of the Secretary of State, and the Government of India propose to appoint, as the first Director of the Central Research Institute, Lieutenant-Colonel Semple, M.D., R.A.M.C. (retired), whose successful administration of the Pasteur Institute of India has marked him out as possessing the zeal and capacity to make the institute in all respects fit for the great task that lies before it.

* * *

"STYLE IN MEDICAL WRITINGS."

We commend to the attention of our professional brethren an article with the above heading which appeared in the *British Medical Journal* of 17th June last, and join with our contemporary in deploring that the "noble English speech is villainously misused by medical writers," that there are so few such writers, "who can convey the knowledge that is in them in well-chosen words arranged in properly-worded sentences," and that "but for two or three examples of happy union of medical thought with literary style, one might be tempted to suppose that there is a natural incompatibility between them." We also agree with him in thinking that "the want of accuracy in the use of words and carelessness in definition and exactness of expression are largely responsible for the imperfect respect in which medicine is held by many men of highly cultivated intelligence." Considering the practical importance of the utterances of a medical man, and the dreary and complicated material on which he has to work, the necessity for "precision of language and orderly sequence in expression," is much greater in his case. If there be so few English medical men who can express themselves clearly and decently in their own mother tongue, how smaller must be the number of our countrymen who are able to do so. We propose therefore to enter into the subject, and dwell on the chief points noticed by our contemporary.

The *British Medical Journal* is by no means alone in making this complaint. In fact, it is the complaints of Mr. Edmund Owen and of Professor Clifford Allbutt that have drawn him to the subject. In addressing the students of the Leeds Medical School last October, the former said that some of their answers at the examination were, as far as literary merit was concerned, such as would scarcely reflect credit upon a boy from a Board school, that similar indistinctness of utterance was occasionally found in the writings of candidates for the highest qualifications in English surgery, and that generally speaking the diction of English Medical literature was for the most part tedious to the last degree. The Regius Professor of Physic in the University of Cambridge, complains of the same defect in candidates supposed to have had the advantage of the best literary education. In a little book entitled "Notes on the composition of Scientific Papers," recently published, he states that in course of each year he has to peruse some sixty or seventy theses for the degree of M.B. and about twenty-five for that of M.D. "The matter of these theses," he says, "is good, it is often excellent; in composition a few are good, but the greater number are written badly, some very ill indeed." "The prevailing effect of their composition," he adds, "is not mere inelegance; were it so it *would be* unworthy of educated men; it is such as to obscure, perplex, and even to hide or travesty the sense itself."

The evil being admitted, the question now is how is it to be removed. "Writing does not come by nature," the art is not to be had for the asking. It is the fruit of continued study and application. As Alexander Pope, whose writings are models of classical English, said long ago,

> True ease in writing comes from art, not chance,
> As those move easiest who have learnt to dance.

Mr. Owen suggests that tutors and "coaches" should themselves learn to write decent English, and goes on to say, "if they deign to enquire to what source I would refer them for style, I would say the Gospels, the Pilgrim's Progress, and the Sentimental Journey." The first suggestion is a sound one. No man can be a successful writer whose knowledge acquired from books, preceptors and personal observation, is not extensive and accurate, who cannot think with clearness and precision, and who is not steady in the pursuit of his object. But he must also possess the qualities of communicating his knowledge in the clearest manner and in the most precise language, and of making the subjects treated by him interesting to his readers. As to Mr. Owen's second suggestion, it is well known that both Professor Osler, now of Oxford, and the great French Surgeon Malgaigne, consider the Bible as the only book in Mr. Owen's list, "of which close friends may be made," but they add that next to the Bible, Shakespeare is the best work in English literature for study. There is certainly no nobler English than that of the Authorized Version of the Bible, the Pilgrim's Progress and the Dramatic Works of Shakespeare; and whoever wishes to attain a pure English style, must acquire a familiarity with these books. But their style is rather antiquated and scarcely suited to scientific subjects, or for every day use at the present time; and Sterne's style would be anything but suitable in medical writings, where simplicity and clearness should be the main objects. Dean Swift's writings would perhaps be a better model for medical writers than the works recommended by Mr. Owen. It seems to us however that no writer on a medical subject ought to take any author or book for his model. As Huxley puts it, "The business of a young writer is not to ape Addison or Defoe, Hobbes or Gibbon, but to make his style himself, as they made their style themselves." He should think and observe for himself, and give expression to his thoughts in his own way, and his style must be adapted to his subject. He should devote particular attention to the peculiar structure, idiom and genius of the language which he intends to make the medium of his thoughts, and should learn the exact meanings of the words and phrases to be found in that language. It is for want of such knowledge that the minds of such men as John Hunter is said to have "died unrevealed."

Professor Clifford Allbutt's book, though rather small in size, is an elaborate work on composition. It treats of the choice of words, of the construction of sentences, of the order of clauses, of the arrangement of paragraphs, of the division of the subject into sections and chapters. It takes note of every fault, of every inelegance of which a writer can be guilty, and illustrates by examples "wrong emphasis, the jingling of like sounds, the jarring of discordant syllables, the abuse of quotations and other defects." The Professor, to quote again from the Journal mentioned before, "writes with the authority of one in whom an inborn sense of style has been developed by familiarity with all that is best in the literature of the world," and he sets forth in an easy and authoritative manner every thing that 'goes to the making of a good style.' His book should therefore be an inseparable companion of all men, especially of students of science who wish to learn the art of writing.

In treating of the choice of words, the Professor assumes the office of a grammarian, and descends to minute points. For instance, he condemns archaisms, odd spellings, slang and foreign idioms, particularly the pedantic use of Greek and Latin plurals of words which have become part of the English language. He objects to the practice too common among medical men, of making use of the word "case" to mean the "patient," and "resents the unpleasant suggestion conveyed in the statement of a candidate who tells him, 'you may then get secondary deposits of cancer in your liver.'" He advises the student "to examine technical gibberish and unseemly medical jargon suspiciously, and to avoid them if possible." He is not opposed to the use of hybrid words when their necessity is obvious. He defends the use of the word "appendicitis," for instance, on the ground that "itis" is an affix which can legitimately be placed after words, just as the English affix "by" is attached to words of Latin or Greek origin. Above all he complains of the wrong use of words by candidates for medical degrees at Cambridge and elsewhere, and by young medical writers, and insists upon their taking as much pains as possible to find the right words to express their meaning.

As young writers find great difficulty in beginning a subject, he advises them not to write anything until they see clearly before them the course they mean to pursue. As to endings, he says, "Let the leave-taking be easy, gracious and impressive in proportion to the theme." As each writer ought to try to hit at the gist of his subject in his opening sentence, the first advice is a salutary one. As to the second much will depend on the nature of the subject. What is most necessary is to stop when there is nothing more to say, and to avoid verbosity as much as possible.

To these detailed instructions, might be added the general advice of Professor Osler to a practitioner, that he must not be "dead to everything outside the groove of routine," and that in whatever sphere his lot is cast, culture must always produce marked effects; and, as a practical advice, he recommends him to read every day, for half an hour at least, before going to bed, and in the morning to have a book open on the dressing table.

Every young writer should particularly bear in mind that the first requisite is to have a thorough mastery over the subject he has taken in hand, that he should have as clear an idea as possible of every creek and corner of it, that his style should be at once simple and exact, clear and concise, and that to profit by the teachings of books, 'he must take endless pains to apply them to practice.' He must also remember that good writing is the product of repeated corrections. It is well known that Shakespeare, perhaps the greatest master of English, had to rewrite his best plays over and over again, and that a scientist like

Huxley "thought nothing of writing out a page four or five times over, to bring out the words" which exactly expressed his meaning.

REVIEW.

A Clinical Repertory to the Dictionary of Materia Medica together with repertories of Causation Temperaments, Clinical Relationships and Natural Relationships. By John Henry Clarke, M.D. The Homœopathic Publishing Company. London.

When the announcement was bruited out that Dr. Clarke will publish a clinical repertory, it was thought that it will be another volume of repertory both clinical and suggestive. Many students of homœopathy anticipated that a concise edition of the big work of Dr. Clarke with detailed symptoms will be given to them. The appearance of the book has taken them by surprise. They now find that it is a practical repertory of clinical materia medica. For that reason it has taken another form than that we generally meet with. Enough complaints have been raised against the repertories which are in circulation, being considered inadequate to our need. Some are comprehensive but not useful. What the shape and arrangement of our future repertories will be, is a debatable question. Be this as it may, we are satisfied that Dr. Clarke has given us a clinical repertory in a useful form. The repertory is an index to his materia medica which has taken a new place for the use of the practitioners of homœopathy. The repertories of causation, temperaments, clinical relationships and natural relationships are useful additions amplified in a modern way. The book will serve an aid to the busy practitioners of homœopathy in selecting medicines after having a reference to the dictionary of materia medica by the same author.

It can be said that no book has been published which has no fault of some kind or other. The printer's devil often comes to create a ridiculous confusion. In the list of abbreviations *Anantherum muricatum* has been transformed into *Anantherum muriaticum.* It is a trivial mistake which can be corrected in the next edition.

Diseases of the Lungs, Bronchi and Pleura. By H. Worthington Page, M.D., Lecturer in Theory and Practice of Medicine in the New York Homœopathic Medical College. One dollar. Boericke and Tafel. Philadelphia.

The book is a useful compendium for reference by the practitioners and students of homœopathy. It contains definition, etiology, symptoms, physical signs, complications, diagnosis, prognosis, general treatment and remedies of the principal diseases by which the human lungs, bronchi, and pleura are liable to be attacked. The small price of the book may be within the reach of many who want to refer to it.

EDITOR'S NOTES.

Hygienic Absorption and Elimination.

The *Buffalo Medical Journal* (June 1905) states on the authority of sanitary officers that the absorption as well as the elimination of moisture takes place quicker with linen than with wool, cotton or silk.

Relations of Allopaths with Homœopaths.

The British Medical Journal (June 24, 1905) states that whatever difference of opinion might exist in the profession as to the relations to be maintained with homœopaths, it is well known that consulting surgeons commonly meet them and operate upon their patients, so that there is precedent for giving an anesthetic if required by a homœopathic surgeon.

New Homœopathic Hospitals.

We are very glad to find that in addition to the new Homœopathic Hospital in Berlin, the hospital at Barcelona (Spain) has been enlarged, and a new hospital is in process of construction at Basle (German Switzerland). A sanitarium has also been opened at Dovas under the direction of Dr. Nebel, formerly of Montreux, one of the foremost homœopathic investigators in tuberculous disease. The Editor of the *Medical Advance* expects that the high open-air treatment of Consumption will now be continued under better auspices in a sanitarium of this kind under a very able homœopathic physician. We hope that the progress of Homœopathy in the continent of Europe, though slow at present, will be more certain in the future.

Liberalism in Medicine.

Governor Pennypacker of Pennsylvania, in vetoing a Bill entitled "An Act to regulate the practice and licensing of osteopaths, and provide for the punishment of persons violating the provisions of this Act," is reported to have said, "If osteopathy represents some truth in the treatment of disease the knowledge and use of which would be beneficial to the diseased and the injured, with what consistency can these practitioners be prevented from making such use of it? Why should their patients be deprived of such benefit as may result from the discovery? To punish a physician who would practise or attempt to practise what osteopaths have discovered, would possibly be a great loss to the community, and certainly a great wrong to the physicians. The whole thought of the establishment of 'schools' of medicine is unscientific. All of those engaged in such pursuit ought to be seeking to ascertain the truth, and to accept it wherever it may be found."—*Buffalo Medical Journal,* June 1905.

Sanitary Administration of Calcutta.

The special correspondent from India of the *Lancet* (10th June 1905) complains that the evils of the milk supply of Calcutta are as bad as they can be, but that the health officer has proposed neither an immediate nor a drastic remedy. He adds—"Nothing could possibly be worse than the present state of things, and it is only the almost universal custom of boiling milk which probably saves the situation."

He further complains that Calcutta has no municipal hospital for the treatment of small pox cases, nor are there horse ambulances for infectious cases. Here the provisions for dealing with outbreaks of infectious diseases are the scantiest. "Even cases of plague have to be taken to the general hospitals where they are put in isolated wards, but in one hospital cholera cases and plague cases are mixed up together, and in another hospital cholera cases are put in the general ward." The heads of the Government of India assured the public the other day that most efficient measures are being taken for the prevention and treatment of diseases in the principal towns of this country. The above account shows clearly how this most needful work is now carried on in the Metropolis of India.

Beer Vs. Tea.

We are glad to find that the ill effects of habitually driking tea is beginning to be noticed in the House of Commons though in a very exaggerated form. In the course of a debate on the Sunday Closing Bill, Sir James Fergusson, a very old member of the House, attributed the loss of teeth in his part of Scotland partly to the use of strong tea, and went so far as to say that he believed "far more deterioration was caused to our race by the excessive use of tea than by the excessive use of beer." Sir William Tomlinson also asserted that tea was doing far more injury to public health than beer. Another member referred to tea as a cause of insanity. Even Mr. Cochrane, speaking for the government said that a great expert in insanity had said to him, "I am coming to the conclusion that drinking is not so much the cause of insanity as that insanity is the cause of drinking."—*British Medical Journal*, June 3, 1905.

Serum Treatment of Syphilis.

Justin DeLisle (*New York Med. Journ.*, December 24th, 1904) has treated about 100 cases of syphilis with injections of a serum obtained from animals inoculated from cultures of the bacillus discovred by Jullien and himself and announced to the medical world in 1901. In several cases of secondary syphilis, the lesions disappeared after five or more weekly injections of 20 c. m. of serum. The blood when tested afterwards was found not to agglutinate the syphilis bacillus. In one case the patient married five months after the injections, and tore the skin over the healed chancre, on the first connection with his wife. No infection of the wife occurred although the patient's blood came in contact with the lacerated vulva, and both were under observation for one year. A case of early tabes with ataxia and trophic ulcers of the feet, was treated with the serum, and the ulcers healed, and the pains disappeared. A case of tertiary syphilis which had not yielded to large doses of mercury and iodide improved quickly under serum injections. A case of secondary syphilis previously treated with mercurial injections, did not improve with serum.—*Brit. Med. Journ.*, May 27, 1905.

Cremation in Scotland.

We are glad to learn from the *British Medical Journal* of 27th May 1905, that cremation is making slow but steady progress in Scotland, and that in one crematorium 167 bodies had been cremated. Sir Henry D. Littlejohn, Medical Officer of Health for Edinburgh said, at a meeting of the Scottish Burial Reform and Cremation Society Limited, that he had made personal enquiries into the system of cremation, and seen how nicely and rapidly the whole thing was managed. Lately he had cremated the body of one of his children, which was reduced to fine ashes in the course of twenty minutes, and found every thing to go on well. He thought it a disgrace to Edinburgh that they should go to Glasgow to have their cremations carried out. He held cremation to be a barrier against foul play passing undetected, because before being cremated the body must be seen by two doctors, who certified the cause of death. Dr. E. Duncan of Glasgow added that in cremation the body was consumed by gases from the furnace, and that the process was really the decomposition of the body by hot air. There was no element in it that was offensive to any mind however sensitive. He hoped that with a little more enlightenment, this method of interment will become popular.

Tobacco Amblyopia.

We pointed out sometime ago how the smoking of cigarettes was unfavourable to the intellectual growth of children, and that laws have been passed in some parts of the United States for preventing it. Another question has now cropped up in reference to the smoking of tobacco, namely does it cause failure of vision and if so, to what extent. One medical man seems to have pronounced that the smoking of 1½oz. of tobacco a week is not sufficient to impair eyesight. On this point, the *British Medical Journal* (7th January 1905) says that no hard and fast rule can be drawn as to what is the limit of safety. "Personal idiosyncrasy plays a large part, each individual who smokes has to find out by personal experience how much he can or cannot tolerate. The smoking of cigarettes or of cigars may, equally with the pipe, lead to amblyopia of varying degrees, given a suitable subject. Any condition which lowers the general health may be a predisposing cause, but some who are apparently in the best state of health are susceptible....It is necotine (the chief constituent of tobacco), which getting into the blood, selects certain nerve fibres (particularly the pupils—mascular fibres in the optic nerves) for its injurious action; and the stronger the tobacco—that is, the higher the percentage of nicotine—the greater will be the amblyopic effect in the susceptible person. Cases have been recorded in which quite small quantities of tobacco, even so little as ½oz. a week, have been sufficient to cause decided amblyopia." Under these circumstances we curse the original importer of tobacco in this land, and hope and pray that the habit of smoking it will be given up.

Death of Two Medical Men from Small Pox.

We reproduce from the *British Medical Journal* of 6th and 13th May last, the following account of the death of Dr. R. P. Connell, who had been in practice at Bamber Bridge near Preston for about 2 years. He was born in India about 1867, and is said to have been vaccinated there at the age of five, but had no marks on his body. Early in April last he had on his hands a case of an exceptionally mild type of discrete small pox. Towards its termination he himself began to feel tired, and experiencing a general feeling of weariness, he thought he had a mild attack of influenza. On April 20th thinking he must be going to have scarlet fever, he consulted Dr. T. Sharples of Lostock Hall. Dr. Sharples saw him the same day, and found that he had a temperature of 103·F., and a slight sore throat, while his face, hands, arms and back were covered with erythematous rash. Next morning he found a number of distinct spots which were commencing to be vesicular, and thereupon he pronounced the case to be one of small pox, and had it removed to the Isolation Hospital. In the evening he found that the spots had increased in number and extent of vesiculation, and that while many of them coalesced, the interspaces were occupied by haemorrhagic patches. From this date the extreme gravity of the case, and its marked haemorrhagic character were apparent. The body became covered with petechiæ, and blood was passed with the urine. Delirium remained slight throughout, but exhaustion was early and complete, and the patient died on the sixth day from general blood poisoning and profound weakness. In this case revaccination had never been performed, and the evidence of even satisfactory primary vaccination had not been good. Here we have a case of the worst or haemorrhagic type following from contact with one of exceptional lightness.

Not many years ago a similar case occurred at Giridih, about 200 miles from Calcutta, where a retired Assistant Surgeon, Dr. Annoda Prosad Mozumdar died from a virulent attack of small pox infected from a case he was then treating. For a medical man, however to die of small pox, or even to acquire the disease at all, is rare.

Uses of Raw Meat, Garlic and Onion.

The following abbreviations and observations of Dr. Emil Weschcke, Professor of Materia Medica, College of Physicians and Surgeons of San Francisco, are reproduced from the *Pacific Medical Journal* of May 1905. Monsieurs Richet and Hericourt have proved in the *Le Tribune Medical* that "cooked meat does possess the specific properties of raw meat to prevent the development of Phthisis, that the therapeutic activity of raw meat is solely concentrated in the portion soluble in water, and that raw meat does not act as a superalimentary agent, but somewhat as a lymph, having a distinct and specific action against tuberculosis."

Dr. John Knott of the Dublin University recommends the systematic use of garlic to prevent tuberculosis. Dr. Carazzani in the *American Medicine* says—knowing that the Italians who eat large quantities of garlic are less liable to tuberculous infection than persons living under the same hygienic conditions who do not eat garlic, he took two groups of guinea pigs exposed to dust containing tubercle bacilli, gave 1 grain of garlic in the food of the first group, and confined the other group to ordinary food. The result was that the second group alone were infected, and those in the first group were immunized.

Dr. Weschcke adds the chief virtue of garlic resides in a volatile oil composed mostly of allyl sulphide, which is eliminated by the lungs, the favourite site of tubercle bacilli, and which exercises stimulant properties over the mucous membrane generally, showing as a result increased secretion from pulmonary, gastric, intestinal and renal organs. Lachrymation and sneezing occur also from inhalation of the oil. It is added that garlic when added in vinegar, is rubefacient and stimulant, that it is useful in subacute and chronic pectoral affections, especially in nervous children, and that its anthelmintic properties are well known to the laity. It is also externally applied as a cataplasm. The above observations on garlic (Allium Satioum) holds true of onion (Allium Cepa), and leek (Allium Porrum). Onions taken raw and plentifully, exert a quieting influence over the nervous system, inducing drowsiness and sleep.

Taking into consideration the sustaining power of raw meat, the value of onions as nutriment and condiment primarily and of the tonic, diaphoretic, diuretic and expectorant effects of the Allium family, Dr. Weschcke recommends them strongly as a tonic in diarrhoea, in anemia and general debility, nervousness, alcoholic excesses, chronic cystitis and other similar diseases.

Plague.

The London Correspondent of the Indian Mirror writes:

Mr. Field intends to ask the Secretary of State for India next Thursday, whether he is aware that in India in 1901, the total deaths from plague were returned at 273,679, in 1902 the number rose to 577,427, in 1903 it reached 851,263, and in 1904 it was 1,022,299, and whether he can state what steps are being taken by the Government for the prevention of the spread of plague.

Mr. Brodrick will not dispute the accuracy of the awful figures given in Mr. Field's question, and with regard to preventive measures he will have nothing to add to the statement made by Sir A. Godley (Under Secretary) published here last Saturday. Writing on behalf of Mr. Brodrick, Sir A. Godley says: "it is not true that the Government of India is without a policy for combating the disease. Every practicable measure that gives prospects of success and that is not utterly opposed to the habits and the sentiments of the people has been and will continue to be, tried. In every District there are medical officers whose duty is to co-operate with the civil authority in advising and assisting the people, while there are well-equipped laboratories for research work and for the preparation of prophylactic fluid. The plague research expedition which has recently been sent to India under the joint direction of the Royal Society and the Lister Institute, acting in communication with the Indian Government, should be regarded as strictly supplemental to the medical organization already existing in India, and not as superseding it. The numerical strength of the expedition has been fixed by the societies which control its operations, with reference partly to the nature of the investigation and partly to the assistance which the expedition will receive in India from the medical services there."

The terms of this communication have been suggested, no doubt, by the somewhat acrid professional criticism which has been directed against the expedition on the ground of its inadequacy and *personnel.* I understand that some effort was made in medical circles to get the research party enlarged and to extend the scope of its enquiry, but without success. I am not very confident as to the practical results of the investigation, but nothing is to be gained in my opinion by discounting the conclusions of the enquirers before they are formulated. It is quite clear, however, that something more than this limited bacteriological investigation is required if the ever increasing death-roll is to be stayed.—*Indian Mirror,* June 15, 1905.

The Effects on Metabolism of Preservatives Added to Foods:

The following is the substance of a valuable paper presented by Dr. H. W. Wiley of Washington to the American Philosophical Society at its last anunal general meeting :—

During the past three years we have studied in the Bureau of Chemistry in the Department of Agriculture, the various effects produced upon health and digestion by the addition of preservatives to food products. The substances which have been studied are boric acid, borax, salicylic acid, salicates, sulphurous acid, sulphite, benzoic acid benzoates, formaldehyde and copper sulphate. The medical effects of all these bodies were carefully observed and recorded. The effects on metabolism were studied by weighing and analyzing the foods received, and collecting and analyzing the excreta of those under observation. The number of persons under observation has, in all cases, been twelve, except where accidental illness has diminished the attendance at the table. The effects produced upon the balance show the total quantity of any element ingested in the food and the amount recovered in the excreta. The research embraced protein, phosphoric acid, sulphuric acid, carbohydrates and fats. Only the data for boric acid and borax have been published. The other data are in course of preparation.

The general effect of borax and boric acid is: (1) To diminish or tend to diminish the weight of the body: (2) to diminish the avidity of the appetite; (3) a tendency to diminish the per cent. of nitrogen excreted, which, slightly marked in the preservative period, was even more marked in the after period, showing an accumulative effect in this direction; (4) the development of a tendency to increase the excretion of phosphorus. All the data taken together show that 97·3 per cent. of the phosphorus digested in the food was recovered during the four period, 103·1 per cent. during the borax period, and 97 per cent. during the after period; (5) a tendency to increase, to a slight extent, the combustion of fat in the food; (6) a tendency to slightly diminish the total calories obtained from the food; and (7) a tendency to increase the quantity of solids in the food eliminated in the faeces. This condition is easily explained in the tendency established during the exhibition of the preservative to slightly derange the digestive functions. The data also show that nearly 80 per cent. of the total borax and boric acid ingested in the food are excreted in the urine and the rest, apparently, through the skin.

The general result shows a greater or less derangement of metabolic processes of a character tending to injure the health.—*Science*, May 26, 1905.

J. L. Van Der Straaten, M.D., M.R.C.P.

Dr. Van der Straaten is perhaps the only student of the Calcutta Medical College who held the appointment of Principal of a Medical Institution. His name deserves therefore to be very widely known among us.

We have great pleasure in giving below a short account of Dr. Van der Straaten's life as presented to us in the *British Medical Journal* of 10th June last. He was born in Ceylon about 1838, and was a descendant of one of the old Dutch burgher colonist of that island, His father died when he was very young. Through the interest of an English friend of his father he was sent to the Colombo Academy. Medicine attracted him when quite young. At the age of fifteen he entered the pharmacy of a retired ship surgeon. At a later date he was formally apprenticed to another firm of chemists, and remained with them for four years, thus acquiring a knowledge of drugs, which proved very serviceable to him afterwards. He next shipped himself in a passenger vessel as an apothecary. On one of the voyages the Governor of Ceylon happened to be a passenger, and young Van der Straaten seized the opportunity to make a representation of his ambition to go to the Calcutta Medical College as a Government student. The result was that he soon after received a nomination, joined the College as a Ceylon student in 1859, and studied medicine with the late Editor of this Journal.

Some three years later as a senior student he went to England, as surgeon of a large sailing vessel and entered himself as a student at St. George's Hospital. In 1863, he obtained the degree of M.D., St. Andrews, and on a further visit to England some ten years later he was admitted a Member of the Royal College of Physicians of London. On his return to Ceylon in 1863 he was given an appointment in the Medical Department of the Colony, and from that time onwards rose steadily in the service. He occupied a position in it for upwards of thirty-five years, and when he retired was Colonial Surgeon of the Western Province. On three occasions he acted as Principal Civil Medical Officer. His connexion with the Ceylon Medical College dated back to the Seventies, and he ruled its destinies for many years. A large number of Ceylonese obtained medical education under his superintendence, and many of them officered the Civil Medical Department. Twenty-five years ago he published a book on the diseases of children, which soon became and still continues to be a general reference book in Ceylon households. He had retired from active work about six years ago, and maintained a very high position in Colombo and its neighbourhood, as a consulting physician, and in addition to holding many important offices exercised a wide influence in and outside the profession. His death occurred at Colombo about a month ago. For sometime before this event he had been a patient in the private wards of the Colombo General Hospital to which he caused himself to be removed for treatment of a diabetic carbuncle.

Malaria in the Roman Campagna.

The report of the Italian Red Cross Society on its work in the prevention of malaria in the Roman Campagna during last year states that the results have been most successful. The Society has seven stations in the Campagna, the population of which may be divided into those who live there all the year round, and those who come down from the mountains to the plains only for a certain season of the year. A certain proportion of the inhabitants of both these categories have acquired immunity, To those who are susceptible the Society distributes quinine in tablets, at first to the number of five or six a day, and after a week at the rate of one or two daily, according to age. "Immune" persons do not receive the large preliminary dose given to the susceptible, but they are supplied with one or two tablets a day throughout the bad season. In this way the amount of malaria in the Campagna has been notably diminished. Of 12,061 persons who took quinine in the prescribed doses last year, only 800, or from 6 to 7 per cent., were attacked. The measures for the protection of the inhabitants against the mosquito were not neglected. The windows of all railway stations, custom offices, and public buildings in the vicinity of Rome are covered with close wire netting, and towards sundown the customs officials wear wire masks. Although these measures have been proved very successful it is difficult to induce the peasants to adopt them. A striking proof of their fatal carelessness in this respect is given by the Rome correspondent of the *Morning Post,* to whom we are indebted for an abstract of the Red Cross Society's report. It may be remembered that Drs. Sambon and Low, of the London School of Tropical Medicine, some years ago spent the three most dangerous months of the year in the most malarious part of the whole Campagna—the lake outside Castel Fusano, near Ostia, without taking any precautions beyond the mechanical exclusion of mosquitos, and escaped, scathless from the deadly breath of the "evil air." Our contemporary's correspondent found on a recent visit that the colony of people from Ravenna, who used to cultivate the marshy lands near the Castle of Ostia, had all gone, leaving an eloquent inscription and many corpses behind them in the adjacent cemetery. The ignorance and apathy of the people are ever the greatest difficulties against which sanitary reformers have to contend.—*The Brit. Med. Journ.,* July 1, 1905.

Parturition Under Seventeen.

We are indebted to the *British Medical Journal* of 20th June 1903 and of 1st April 1905, for the following observations of Dr. Picard (*Thèse de Paris*, 1903) and of Dr.Gache (*Ann. de Gynec et d'obstet.*, December 1904) on certain cases of precocious pregnancies:—Dr. Picard found that although the pelvis of very young girls was ill-developed, the joints and bones were much more yielding than in the adult so that delivery was relatively easy. In these cases the catamenia generally appeared early. The process of labour itself was essentially normal and the membranes seemed to be tough, so that the liquor amnii was not discharged till late. Among 31,921 labours, which Dr. Picard observed there were only 38 such cases. The average duration of labour was 14½ hours. In 17 out of the 38 cases, the placenta was inserted in the inferior segment of the uterus. The patients did not suffer from the well-known complications so common when low insertion occurs in the adult. In all the 38 cases the puerperium was absolutely normal and the child weighed on an average about 6lb. and 9oz. In these cases it was often difficult to rear the new born during the first few days after birth. These young mothers readily become pregnant again more so perhaps than primiparae of a more mature age.

Dr. Gache attended 91 labours in patients under 17 in the Rawson Hospital, Buenos Aires (South America). One of these was English by birth, 2 French, and some were Spanish or Italian, but the majority were Argentines, an early-maturing, prolific race. These young mothers were not more exposed than others to abortion and to other complications of pregnancy. Only 1 case had marked narrow pelvis due to defective development, and 3 cases had slightly-contracted pelvis. The forcep was applied in these 3 cases, as well as in 3 others where lingering labour endangered the fetus. Caesarean section, with the rescue of both mother and child, was performed on a European Spaniard aged 13, who had distinct pelvic contraction. In the other cases delivery was normal, but the duration was above the average in adults. In the 91 cases the presentation was vertex in 85, pelvic in 5, and the remaining case ended in abortion at the third month. Damage to perineum, vulva and vagina was rare, and in every instance was rapidly healed. No case of placenta praevia was noted. The placenta weighed on an average over 1lb. and 2oz. The expulsion of the after birth was normal in all the cases. The average weight of the fetus was 3039 grams, a little under 6¾lbs. Thus, physically speaking, juvenile primiparae do well; they certainly bear fine infants. Gache's view was corroborated by Kleinwachter who found that the younger the mother the bigger the child, and who gave the average weight of the latter as 3,270 grams.

These observations are very interesting to the people of this country, where precocious pregnancies occur in the majority of cases. We shall be very much obliged to the members of our profession here, if they favour us with similar observations of theirs in cases which come under their charge.

CLINICAL RECORD.

Indian.

TWO CASES OF BUBONIC PLAGUE.

By Dr. Hem Chandra Ray Chaudhuri, L.M.S.

I

S———————, a girl of about five years, residing at Sankaritola East Lane in a hut, was attacked by slight fever on the 27th April 1905. Her elder sister, about fourteen years, was then suffering from plague of a violent delirious form, having been bitten by a plague infected rat. The girl under treatment was not delirious. She was rather neglected on account of the severe kind of sickness of her sister. On the morning of the 29th April when the fever was more perceptible than the previous day, the attention was drawn to the condition of the girl. Temperature was not taken. *Bell.* 30 cent. At 5.P.M. the elder sister died.

30th April. It was reported that she had profuse sweating in the morning and seemed she had no fever. *Bell.* 30 cent. In the evening the temperature was 104. F. Placebo. It was reported that she had parotitis of both sides. Placebo.

1st May. The morning temperature was 100·2. Chin. 3 dec. The parotitis of both sides partially subsided. Evening temperature 98.

2nd. 98·2. Chin. 3 dec. Evening temperature 98·4.

3rd. The enlarged parotid glands were decreasing in size. Chin 3 dec.

4th. No fever, getting on better. Chin 3 dec.

The subsequent report was that she went to her home, six miles south of Calcutta, Barisa, and perfectly recovered without a relapse.

II

A———————, a boy of about sixteen residing in a hut at Jadu Nath Sreemany's Lane was attacked with fever and enlargement of both parotids on the 29th April, 1905. He had fever for the last three days, but it was thought that the type was of an ordinary character. The temperature on the morning of the 29th April was 100·6. The left parotid was worse. *Aco.* 1 dec. Evening temperature 102·4. F.

30th. The enlarged parotids were almost the same. Morning temperature 101. *Bell.* 6 dec. Evening temperature 103·2.

1st May. Morning temperature 100. The glands were almost in the same enlarged condition. *China* 3 dec. Evening temperature 101·4.

2nd. Morning temperature 99·8. *China* 3 dec. Evening temperature 101. He felt rather better than before.

3rd. Morning temperature 99·2. *China* 3 dec. Evening temperature 100. The parotids were gradually subsiding.

4th. No fever. *China* 3 dec.

6th. No fever. The right disappeared, the left still remains. *Merc. sol.* 12 dec.

8th. The report was that he was gradually getting better by the use of the same medicine.

10th. It was reported that the enlarged gland has disappeared.

Remarks.

The two cases of Bubonic plague are rather of a mild type. *China* could check the fever and produce partial absorption of the parotids. It was given on the indication of sweating on the covered parts, as in other cases, already reported in the *Calcutta Journal of Medicine.*

Foreign.

A CASE OF MALIGNANT DISEASE OF THE MOUTH.

By William Gordon, M.D. Cantab., F.R.C.P. Lond.; Physician to the Devon and Exeter Hospital.

I desire to record, for what it is worth, the following very remarkable case.

The patient, who was a man, aged 53 years, consulted me on November 8, 1904, for what I diagnosed as cancer of the tongue. Till his present illness he had been a healthy man had never had any venereal disease, is married, and his wife has had no miscarriages or still-births. One sister is said to have died from cancer and another is reported to be suffering from cancer of the breast. About six months before I saw him he began to complain of "sore throat" on the left side, which he attributed to a sharp edge of a tooth which hurt the side of his tongue. This grew worse, and he began to have pain which ran up into his ear. Later still there was difficulty in opening the mouth. Just before he came to see me he had a hemorrhage from the tongue (about a pint), followed next day by a smaller one. There had never been any discharge of pus. He said that he had lost a stone in weight. I found him unable to open his mouth more widely than just sufficient to admit my finger or to protrude his tongue except just beyond the teeth. There was a deep ragged ulcer on the left side of the tongue opposite the last molar teeth, with raised hard edges, very tender, bleeding on examination, and surrounded with much induration, which spread to the gum and anterior pillar of the fauces. He had severe pain, which sometimes amountted to agony at night, radiating to the ear. I could feel no enlarged glands in the neck. I told him that he had cancer and told him to consult a surgeon at once. He saw four surgeons, all men well qualified to judge of such a case from extensive experience in consulting work. All four diagnosed cancer. Immediate and extensive operation was recommended. He refused this, and proceeded to treat himself at home as follows. He took a handful of violet leaves and put them in a basin, pouring over them a pint of boiling water and leaving them to soak for twenty-four hours. At the end of that time he poured off the liquid and divided it into two equal parts. One part he drank in the next twenty-four hours and the other part he used for making hot fomentations, which he applied continuously outside the neck on the left side for two hours every night. Sometimes he used the leaves themselves as poultices outside the neck. Sometimes he kept the fomentations on all night. He began this treatment on November 10th, and was so much better by January 23, 1905, that his employers sent him to me to show himself. The change was extraordinary. He looked well. His weight had gone up from 10 stones 3 pounds (on November 8th) to 12 stones 7 pounds. The pain was trifling; he could open his mouth freely and protrude his tongue almost naturally. The ulcer was much reduced in size, its hardness was less, the surrounding induration was greatly reduced, and it was no longer tender or inclined to bleed. On February 20th I saw him again. He had continued the violet treatment just the same since January 23rd. There was almost no pain, and except a hard scar very little remained of the deep ragged indurated ulcer of last November.

The violets were sometimes wild, sometimes garden-grown. He thought the latter better because they "tasted stronger." Except the violet treatment absolutely no other remedy had been used, locally or internally. The ragged teeth have not been removed. I believe the man to be absolutely honest. He has nothing to gain by deceiving me, and appears only anxious that others should profit by what he considers has cured himself.

I think it will be admitted that I am justified in reporting this case. It proves nothing certainly, because the growth was not cut so as to afford microscopic evidence, but it is most suggestive and interesting. Personally I am now advising the trial of this violet treatment in all cases of undoubted cancer which are inoperable, and I will in due course publish the results. The publication of this case may possibly induce others to give a more serious trial to the so-called "violet cure" than I fancy it has hitherto received.—*Homœopathic World.* May 1, 1905.

CASE OF RETROFLEXED UTERUS.

L——A——, æt. 32; married 2 years.

Sept. 2, 1903.—Comes up for irregular periods, scanty, almost *nil*; recurring every three weeks. For two days before and for a week after the period there is pain (aching and bearing down) in hypogastrium, lumber region, and round body; pain only since marriage. No pregnancy; dyspareunia.

Examination shows colon loaded; vaginal orifice small and red; uterus completely retroflexed, easily replaced, but at once relapses. Ignatia 1x t.d.s. This was continued till October 21. Patient then reported that she felt much better in herself, but had pain every day—aching in hypogastrium, and especially in the left iliac region, worse on walking; period scanty, Sepia 30.

A month later she "feels almost well"; no pain till yesterday; bowels not regular; periods scanty. Senecio 12 ♏ij t.d.s.

Jan. 13, 1904—Feels quite well. Period slightly painful.

Sept. 7.—Pain back after freedom for four months. Sepia 30 bis.

Sept. 21.—No better; pain still; very frequent micturition; urine pale; pain left thigh. Lycopod. 30, ♏ij t.d.s.

Oct. 20.—Better till a week ago; bad with pain at period since. Hot mustard baths and mustard poultices relieved.

Gets faint; no appetite. Examination: Vagina small, orifice less red; cervix large. Uterus, as at the first examination, completely retroflexed. Dyspareunia occasionally. Phosphoric acid 3x.

Dec. 2.—Better in herself; pain now and again; chilly. *Thuja* 30, ♏ij M. et N.

Dec. 28.—Pain has been bad, < nocte, = no sleep for several hours. Period practically *nil.* Strained, squeezing feeling L. groin. Passes less urine. Does not suffer with head now. Has been lifting her mother (ill with phthisis) and strained herself. *Tub.* 200, ♏ij weekly. *Arn.* 30, ♏ij M. et N.

Feb. 1, 1905.—Was much better for a month; had no sign of pain. Pain has returned one week, nocte. *S.V.R.*, ♏ij bis.

Feb. 10.—Now, fourteen days after period, pain. *Arn.* 30, ♏ij bis die.

Feb. (? 24).—*Tub.* 200, ♏ij weekly. *Sac lac.*

March 29—UTERUS NOW QUITE FORWARD. Colon not loaded.—*Monthly Homœopathic Review.* May 1, 1905.

CASE OF PELVIC PERITONITIS.

H——J——, age 35; married 5½ years.

Dec. 30, 1903.—Comes for "weakness in stomach" since marriage. Seven weeks ago had a bout of bad pain with menstrual period, which has not ceased to flow since. F. H. good. Personal history: Has suffered from weakness; influenza, several times; measles. Used to have a "yellow discharge"; cured eighteen months ago by "a West End Physician." No pregnancy; no abortions.

Last period began seven weeks ago, and has lasted ever since; patient lost a great deal for about a fortnight, then less for the last few weeks; colour, deep red. Patient has "dreadful pain" with her periods; it lasts a week, and is worse on the first two days. The pain is in Rt. groin and across sacrum "as if inside were being pulled out." It is < by day. Urine often thick on standing. Aching at anus, and constipation, for these seven weeks, during which she is also losing flesh.

Exam.—Cervix points forward and to left, and lies over to left. Fundus not felt anteriorly. *A mass in Douglas' pouch, fixed, semi-elastic* = fundus and pelvic peritonitis with tube and tubal mole, or = fundus with pelvic peritonitis and tube. Temp. (vagina), 98.6°. *Hydras. tampons; merc.* 6x*; sulph.* 6x.

Jan. 20.—Period stopped a week ago. Has had pain in stomach, now in chest. Appetite better. *Merc.* 30 bis die; *sulph.* 30 nocte.

Feb. 17.—Better. Has had an ordinary period c. less pain. (Merc. makes her feel rather sick!) Looks M.B. *Merc. s.* 30 mane; *sulph.* 30 nocte. . . .

Better, and worse; same medicines. . . .

On *April* 27, *sulph.* 30 only; pils iij bis.

May 25.—> Pain not nearly so bad in Rt. inguinal region. Period lasts seven days (six diapers). Gets aching in back-passage for an hour once a day. Feet cold. *Rhp.*

June 22.—Pain in abd. M.B. Pain in anus not affected by stool. (Fell thirteen months ago and struck the part.) Not tender to pressure. *Sac lac.*

July 20.—V.M.B. Weak. Last period painful. Five days later, scanty. *Puls.* 12, mij bis.

Sept. 14.—Mass nearly disappeared. *Silic.* 30, mij bis.

Oct. 12.—Easier. Leuc. acrid, not offensive. *Rep.*

Nov. 16.—Dull pain in abd., < P.C. Last period very bad pain; eight diapers; reg. as to time; dark in colour. Pain begins two or three hours before flow and lasts four days. *Ars.* 6x, mij four-hourly.

Jan. 4, 1905.—Pain Rt. ovarian region was better for a time c. *ars.*; now "medicine has ceased to act." Pain gnawing, sometimes stinging; < after all food; goes all over abd. Weak feeling. Neuralgia right side of face since here. Sinking feeling. *Sep.* 30, mij bis die.

Feb. 8.—Pain Rt. ovarian region. Feels less sinking. Has been feeling *much better.* Gets slight discharge a week before period, "very sore." < Early morning, > nocte. *Medorrh.* 200, mij weekly. *Sac lac.*

March 8.—Much worse. Pain in lower abd. still. Still constipn., c. feeling of something left behind. Irritation in bed at night. *Nux* 30, *sulph.* 30, alt. four-hourly.

April 5.—Cat. now reg. Last profuse. Dysmenia not quite better, etc., etc. *Rep.*

April 27.—*Exam.*: Lump smaller and less tender. Fundus now easily felt anteriorly.—*Monthly Homœopathic Review.* May 1, 1905.

CASE OF SALPINGITIS, *SILICEA* 30.

Rose Styles, age 32; M. 7 years. (Sent on by Mr. Dudley Wright.)

July 6, 1904.—Severe pain in "stomach." "Discharge" since confinement in Feb. "Lump" L. side of abd. F. H.: An aunt D. "tumour." Illnesses: Measles three times; quinsies; piles and fissure (operation by Mr. Dudley Wright); ulcers in mouth. Four confinements; the last "hard"; "not a bad confinement, but not well since." No miscarriages. Last period June 19; lasted ten days; lost much (fifteen to twenty diapers); deep red; clots. Recurrence, under a month, very irreg. Not much pain with periods; a little bearing down. Leuc. very bad; varies in colour, white to deep yellow.

For three weeks has had *pain* left side abd., sometimes a lump there; pain sharp, twitching, prevents sleep; "when hungry, something gnawing there." Urine has been scalding and thick. Irritable—everything a worry. Sleeps badly always. Appetite poor. General condition good. Pain has been better for Mr. Wright's colocynth 3x.

Exam.: Uterus subinvoluted. Cervix low. Mass (? tube) to left of uterus, with bands between. Mass elongated, flattish, 3in. long by 1in. in breadth; extends outwards and upwards from border of uterus to side of pelvis. A good deal of thick discharge. *Silicea* 30, ♏ij t.d.s.

Oct. 5.—A little pain, not much. Rather more discharge. Period better; monthly now, and not excessive ("used to come twice a month, and too much"). *Lump much smaller.* *Rep.*

Oct. 26.—*Very much better.* *Exam.*: In Douglas' pouch there is still a tubal swelling, but no bands left, and all organs mobile. "Does not feel like the same." (Patient has not been up to hospital since.) *Monthly Homœopathic Review.* May 1, 1905.

Gleanings from Contemporary Literature.

HAHNEMANN.

THE ONE HUNDRED AND FIFTIETH ANNIVERSARY OF HIS BIRTH, MEISSEN, SAXONY, APRIL 10, 1755.

P. W. SHEDD, M.D.
New York.

To dwellers near the mountain seldom come
Full visions of its splendor.
When the sun
At dawn slips o'er the misty hills they lead
Their flocks abroad to search with downcast eye
For food and drink that therewith they may live
Their little day ; then quaff an opiate draught
Of weariness, and swoon away to sleep.

But he who gains perspective shall behold
As in a dream, yet truly, the full sweep
Of super-eminence ; shall see the night
Flame forth with golden globes of moon and star
In rhythmic beauty ; he shall watch the clouds
Wreathe incense ; he shall hear the silences
That brood o'er crystal lakes set in the hills.
He shall discern that even wintry storm
But weaves adornment, that the day may show
The great mount calmly regnant, steadfast still.
Thus fluent years, yea, even centuries
May slip away ; the lad who tended flocks
Doth sit, a trembling grandsire, by the hearth,
Then turns to dust ; another takes his place
And dreams awhile. Vacuity is theirs.
They lived and died ; were clay to meet the need
Of evanescent hours, wrought to a form
That served its day and age, therewith content.
Thus common fate !
But sometimes in the line
Is born a mountain spirit, like in form
And mien to most his fellows, yet who rises up
And gathers greatness, reaches toward the stars
Of sempiternal verity, and lives
Forever.
That intangibility
Which men call soul strikes into space and fills
What hitherto was void. Dark chaos turns
To law and light, and all the tensive years

That prayed in lowliness, softly rejoice.
The land that giveth birth to such a son
Hath served mankind. Forth from its borders flow
Rich blessing for the realms ; old Earth exults
That Truth hath taken form, and is re-born.

To-day the circling laurel and the bay
Are twined for him whom we commemorate
As master, HAHNEMANN.
A century hath run majestic course,
Another stands at zenith since the day,
The sun-kissed, laughing, tear-gemmed April day,
When to the quaint and ancient Saxon town
Of Meissen thither came a little babe
That in its infant hands bore destinies
Of healing and rejoicement to the race.
Within a fertile vale through which a stream
Flowed to the stately Elbe on toward the sea ;
Round which the darkling mountains stood on guard,
Topped with the castles of an ancient time ;
Whereo'er the pleasant sun looked down upon
Rich fields of golden grain and purple grape,
The lad saw the new world,—for the old earth
Is born again for ev'ry happy child.

He roamed its fields, its winding forest-paths ;
Heard the wild thrush's song ; beheld the clouds
Wrought into airy visions, fleeting, strange ;
Inhaled the fragrant breath of vernal blooms ;
Watched sun and star and moon sublimely swing
Through all the vasty spaces of the sky ;
Then, finally well-wearied homeward turned,
To nestle 'gainst a tender mother's breast ;
To hear the patient father's kindly voice
Bidding a fond good-night.
                Here the lad grew ;
And here were laid with thoughtful loving care
Foundations of his greatness ; love for truth,
The gift of meditation, and desire
To learn, and nobly serve his fellow-men.

O happy childhood ! Pitiful are they
That knew it not ; whose age-worn dimming eyes
May ne'er recall the far Elysian fields ;
Who never heard the gentle mother sing
At eventide the drowsy slumber-songs
That wafted into dreamland weary babes.

The years fled on, till, crowned with all that then
Made lore profound, yet thrice more wisdom-blest,
The youth turned to the sterner tasks that wait,
Insistent in their claims, on every man.
And with compassionate and kindly eye,
He sought to heal the ills of humankind ;
And watched the pain-racked body as it writhed,
Caught in the grasp of some fell malady,
And watched and prayed and vainly tried to find
The magic potion that should daunt grim Death.
Too oft in vain !

His meditative mind
Could find no law to guide ; no light to cheer.
The universe was law ; the stars that fell
From heaven shot through space obeying law ;
The shimmering snows that crowned the mountain top
And fed the bubbling springs which cooled the vale,
Thence hast'ning to the wild impetuous sea ;
The clouds, the flow'rs, the seasons, e'en the mind
Of man adept in subtlety,......all these
Bound fast by law to run appointed course,
Yet here no law !......dull hearsay, duller chance,
Tradition's babbling words, all meaningless ;
Empiric farce to meet the solemn hour
When life and death are poised upon the scales.
Great God, give light ! he cried,
And searched again the learning of the age
To find surcease of sorrow. None was there.
Yet still he sought, and moaned, 'Tis blasphemous
To think that He who wrought man to His form,
Tracing the subtile windings of his soul,
Crowning the wondrous body with a mind ;
Who cares for e'en the insect in the dust ;
Who heeds the sparrow's fall should love man less.
Should thus abandon him whose soul he freed,
To undeserved tortures of the flesh.
Nay, there is God, and God and Law are one.
And then he fled the sophistries of schools,
Their vain traditions and their cruel arts ;
And with a grand simplicity sought facts,
Not theories, impalpable and vain.
He gathered up the herbs and made of each
A purest tincture ; brought the sea-shell's heart
In clear solution ; took the drifting sand,
Shattered its crystal bounds and drew therefrom
A magic strength ; from earth's deep mines conveyed

Its healing oils, and bruised the gleaming ores
To potent dust.
Then on the altar-stone
Of sacrifice he lay him down, and said ;
Not on the sick shall these be tried. Nay, I
Will one by one prove these, and if there dwell
A virtue in them it shall then be shown ;
And if there be a Law the sun of truth
Shall glint it for me with refulgent ray.
And through laborious days and grievous nights
He garnered in the harvest, the great Law
Of Similars, whereby most dread disease,
Fought with swift weapons of as keen a steel,
Is made to cringe and supplicate and fly.

Thus with pure science, sinking to the depths
And rising to the stars, he built the fane
Which stands today unshaken, permanent.
So true the fabric that the storms of time
But fix its firm foundations, and the years
With subtile touch add beauty unto strength.

War has its captains whose incisive steel,
Whose thundrous cannon and whose iron-shod horse
Force on an oriflamme of Right or Wrong
To victory ; they primal passions loose
In awful, awless grandeur till the fields
Grow rich with flesh and crimson run the streams.
But thou, Great Captain of the eager hosts
That wage unceasing strife with ills profound,
Art greater !
Thine the master-mind that rules
Because it cherished Truth, and questioned not
What said this man or that, nor bowed before
The bloody altars of a sin'ster art,
Whereon the sick were laid to test the power
Of monstrous potions rivalling the broths
That witches brew at midnight ; where the lance
Cut through the tender flesh to exorcise
Phantasmal demons pestering the blood ;
Where shattered frames, though pure or vile the soul,
Endured the agonies of hell, vouchsafed
In long and gen'rous dose by ignorance.
Think ye the picture over-drawn, then read
The tomes of history ; nay, e'en today
Some potions strange and dubious are mixed.
O thou, my Captain, whose ingenuous mind

Sought law where insolent disorder reigned ;
Simplicity where dull confusion ruled ;
Thy precepts are of gold, and oft I turn
Back to thy lucid pages, there to find
The balm that soothes and mitigates and cures.

We call him mortal ; 'tis a word that means
So much or little. Years sweep Lethe-ward
Our dreams, our hopes, our toils, our prayers, and yet,
He who hath caught the truth and held thereto,
The truth that brings humanity new hope ;
That lights the sombre eye ; that turns the moan
To cry of joy ; that stays the hand of Death,
Saying, Not yet the end !......
For him while earth
Shall last, the grateful sons of men shall bear
A dear remembrance.
All good physicians, good because they love
Their fellow-man, and serve as best they may,
Are worthy of remembrance, but, we hold
That he who sneers at truth because, perchance,
Another than Hippocrates hath delved
And found the gem, doth act flagitiously.
Such persecute, and force a "school" to rise
And staunchly guard the truth and hold it safe.
Such call him quack, themselves but charlatans.
But Hahnemann, steadfast, unmoved and calm
Like the great mountain white with ancient snows,
Towers o'er the footling hills.

They call him mystic ; he, the scientist
Who wrought stupendous structure with the stones
Of simple fact cut true with genial hand ;
Who said, "Each stone and beam thou too may prove,
And verify my work. What I here build,
Is no conjecture."
Time hath shown its worth ;
The years enrich its beauty ; it hath stood
Colossal mid the storms of arrogance,
Of ignorance and spite, and we today
Acclaim its massive strength and coming fame.

We celebrate, the wide world celebrates
The birth of HAHNEMANN.
Isles of the sea,
The frozen north, the equatorial zones,
Ay, ev'ry land where man hath noblest grown

Hath knowledge of him ; such his Hall of Fame ;
Some still refuse to honor.
Let them know
Mohammed bade the mountain come to him ;
But, when they stood together it was found
That great Mohammed had most foot-sore grown.
Or, let them ponder over Canute's fate.
King Canute set his throne upon the sands,
And bade his minions scourge the rising tide
Of the vast tranquil sea. And so they scourged,
And Canute cursed, but still the pond'rous waves
Rolled up the flinty sands, caught in the grasp
Of law immutable......and Canute fled.
So to the mountain shall dull prophets come ;
And cursing Canutes learn the hopelessness
Of waging war 'gainst Truth's omnipotence.

A parting look at genius near to death !
The piercing eye glows softened with the film
Of dissolution ; from the noble brow
The snowy locks sweep back ; the clarion voice
Grown weak, yet still decisive, calmly speaks,
"To me God nothing owes ; I all to him."
Then in the shadowed room a silence came.

But while the surging tides of centuries
Shall ebb and flow across the sands of time ;
While hearts shall love, and Love be doomed to watch
The patient suff'rer count the midnight chime
And wonder if the day will dawn again ;
And while the steadfast helper bends to catch
The wav'ring pulse, and gives the simple draught
That bringeth healing, if there healing be......
So long shall HAHNEMANN, chief of his craft,
Be loved and cherished, lauded and revered.—*North American Journal of Homœopathy*, April, 1905.

THE LONDON HOMŒOPATHIC HOSPITAL (ENGLAND).

BY JAMES SEARSON, M.D.
Physician to the London Homœopathic Hospital—London, Eng.

At the request of the Editor of this journal, I have pleasure in contributing the following sketch of the hospital.

It is the oldest established general hospital of the metropolis, being 55 years old. Of the 103 best known hospitals of London 84 are its juniors. It was founded to demonstrate to the medical profession and the public, by treating the sick poor, the truth and importance of the reformed practice.

Dr. Frederick Foster Quin was largely responsible for the medical organization of the scheme. Its first home was in a commodious house in Golden Square. The Duchess of Cambridge became its patron, and the list of vice-patrons included many well-known names, including the Duke of Beaufort, the Archbishop of Dublin, the Marquis of Anglesey, the Marquis of Worcester, the Earl of Essex and Lord Ebury. Its life began at No. 32 Golden Square, now the site of the London Throat Hospital, on April 10th, 1850, the anniversary of Hahnemann. It afforded accommodation for 25 in-patients and excellent facilities for out-patients. In the year 1854 a terrible epidemic of cholera, which ravaged the metropolis, brought the hospital prominently into public notice. Hahnemann on receiving a description of the stages of the disease, had prescribed some remedies, which during the epidemic now under consideration, proved pre-eminently successful. The number of cholera cases admitted was 61, no less than 36 reaching a state of collapse. Of the 61 patients only 10 were lost, equalling a death rate of 16.4 per cent., while under allopathic treatment, the losses under the most successful method were 36 per cent., and under less successful, 46 per cent. The contrasts between the two systems of treatment were so striking that Dr. MacLaughlin (one of the medical inspectors appointed by the General Board of Health for visiting the wards of the newly founded Homœopathic Hospital) stated, "I went to your hospital prepossessed against the homoeopathic system, and I have taken some pains to make myself acquainted with the rise, progress and treatment of cholera. I saw several cases which did well under your (homoeopathic) treatment, which I have no hesitation in saying would have sunk under any other. Although an allopath by principle, education and practise, had it been the will of Providence to afflict me with cholera, I would rather have been in the hands of an homoeopathic than an allopathic adviser."

In 1859 the smaller hospital in Golden Square had so far demonstrated itself to be a public want and benefit, that it closed its doors to open them wider in Gt. Ormond Street, in a building more worthy of the enhanced position of homoeopathy, and capable of enlargement to the proportions demanded by the future progress of the science. In Gt. Ormond Street, a sum of £10,000 having been raised, three houses, Numbers 50, 51 and 52 were purchased, and adapted for hospital work, and formally opened on the 12th of May, 1859, the friends of Dr. Quin contributing nearly half the building fund.

The increase in the work done during its career is shown by the following figures : In the first year (1850) in Golden Square the in-patients numbered 156, and the out-patients 1,547, making a total of 1,703. In 1890 in Great Ormond street, the in-patients were 830 and the out-patients 10,363, making a total of 11,193. At Golden Square it existed nine years. Its history up to 1895 is divisible into five periods of nine years.

	Patients. (in-and out-)
First nine years to 1859	24,894
Second nine years to 1868	42,003
Third nine years to 1877	65,995
Fourth nine years to 1886	72,420
Fifth nine years to 1895	93,665
Total	298,977

From 1896 to 1900, inclusive (five years), the total registrations have been 108,841, and finally in 1903, which is the last year for which the figures have so far been published, the in-patients were 1,145 and the out-patients 23,869.

In the year 1890 the Hospital Board, under the chairmanship of Major William Vaughan Morgan, decided that a new building should be proceeded with on the site of the old hospital. A sum of £30,000 was promised and paid in the course of a year and a half. Additional houses were purchased for the purpose, and a temporary building was constructed so that no interruption in the work of the hospital should be allowed to occur. Meanwhile plans and designs were prepared for the new building, and it is not too much to say that every excellence possessed by the most approved modern hospitals is represented in the new building. It accommodates 100 in-patients, and adequate provision is made for the surgical and medical departments. The foundation stone was laid on June 23rd, 1893, by their Royal Highnesses, Princess Mary Adelaide, Duchess of Teck, and Princess Victoria May of Teck. The hospital is in three main blocks. The out-patients' department is in the basement and the building reaches an elevation of four stories above the out-patients' department. The three blocks are separated by air spaces, bridged and covered by cross ventilated corridors. The operating room is laid in white terrazzo mosaic, giving a perfectly impervious polished floor. It is lighted by plate glass giving an extensive light, and provided with adjustable electric lights, and a system of basins and flushes on the treadle plan. The out-patients' department is lofty, well lighted at every point, and affords comfortable accommodation for 400 patients per day.

There is nothing in the developments of modern medicine or surgery, from whatever reliable source, which is not gladly taken advantage of for the rapid and complete recovery of its patients and the widening of the knowledge of its medical staff. The latest refinements in antiseptic surgery, the application of electricity on the most advanced methods; in short, every aid that modern science can give is impressed into the service of the hospital patient. The hospital claims, therefore, to be in the front rank of reformed medicine and advanced surgery. Every qualified medical man is heartily welcome to see the wards and the manner in which this claim is sustained, because it is believed that his visits should be of advantage to him and to medical science generally.—*North American Journal of Homœopathy*, April, 1905.

IRON.

P. W. Shedd, M. D., New York.

"Man is tormented by a desire to know the first cause of what he sees, and when the impossibility of discovering it is demonstrated to him, he takes refuge in a supposition."—*Broussais.*

This tormenting desire to know, to reach the Ultimima Thule, the first cause, is the untamed, untrained strength of mankind, its adolescent vigor, and *per se*, is as valueless, practically, as any other misdirected dynamid.

Inductive reasoning, the marshalling of particulate facts which tend, illuminatively, toward the discovery of a practical law; Newton, the falling apple, the law of gravitation; Hahnemann, experimentation on the healthy body with *Quinine*, the law of similars—these make for progress in physics and therapy; this procedure is the dominant factor in all modern true science.

The action of *Iron* in the human economy has been fully explained in six different theories by allopathism; in anæmia (not pernicious) and chlorosis it is administered not infrequently with benefit, but "how *Iron* accomplishes this feat is, as usual, in the matter of the action of a medicine, entirely unknown," says one author, which is a damnatory admission since a seventh or eighth theory might be easily propounded, printer's good ink used profusely, and the allopathic medical mind once and again be befuddled.

The homœopath, after the fashion of Newton and Hahnemann, is content with facts, although ratiocination is not to be denied either to Newton or Hahnemann. Having established the factfilled pathogenesis of *Iron;* having discovered by acute observation and inductive reasoning the law of similars, he is ready to meet a *Ferrum* case and cure *cito, tute et jucunde*, whether it be chlorosis (Cf. *Absinthium, Alumina, Argentum Aurum arsenicosum, Bryonia, Chlorum, Cuprum*, etc., etc., etc.,) or rheumatism of the left upper arm and deltoid (Cf. *Nux moschata*), or any other derangement of health presenting *Ferrum* indications.

Homœopathic treatment of disease is a process of absolute inductive reasoning, as opposed to the deductive process—*Iron* cures anæmia, this is a case of anæmia—practised by the allopathic infant in drug therapy.

Note the infantile mechanism of the allopathic mind: Bright things are diverting toys; a red-hot coal is bright; ergo—unfortunately, the allopath has the discretion to use his patient as cat's paw, and the allopathic monkey goes unsinged.

To return to inductive science. We have a case of menses delayed from climatic change for three months. There are present florid complexion, which easily flushes and pales, physical and mental irritability, periodic headache, pulsating, hammering, constipation. ℞. *Ferrum* 30, gtt. v, in half glass of water, teaspoonful night and morning. Three doses establish the normal flow at the scheduled time with disappearance of concomitant troubles. The ponderable quantity of *Iron* ingested was null. What did it? Possibly a theory. It is well to have the medicine case fully equipped with indicated theories of this description; they ameliorate the health of the community.

Iron is used in the following forms:

Ferrum metallicum,
Ferrum aceticum,
Ferrum arsenicosum,
Ferrum bromatum,
Ferrum carbonicum,
Ferrum iodatum,
Ferrum magneticum,
Ferrum muriaticum,
Ferrum pernitricum,
Ferrum phosphoricum,
Ferrum phosphoricum hydricum,
Ferrum picricum,
Ferrum pyrophosphoricum,
Ferrum sulphuricum,
Ferrum tartaricum.

The red line of irritability of fibre (or alternate laxity), physical and mental, or both, runs through the group.

Some of the compounds, *Ferrum aceticum arsenicosum*, *carbonicum*, *pernitricum*, *pyrophosphoricum*, *picricum*, *tartaricum*, have not been proved, but used on component indications.

Ferrum metallicum is predominantly left sided; *Ferrum muriaticum*, *phosphoricum*, *phosphoricum hydricum*, right-sided; the others more or less balanced.

A characteristic feature of the pure metal is the alkalinity of urine. (Room for a theory here !)

In *Ferrum metallicum*, also, we have the "cramp" element; bladder cramp, stomach cramp, bowel cramp, vascular cramp, throat cramp, lung cramp (asthma), limb cramp (fingers, calves, soles, toes); *Ferrum magneticum*, eye cramp (temporary amaurosis) *Ferrum muriaticum*, abdominal cramp, cramp in calves, especially at night; *Ferrum sulphuricum*, limb cramps, especially feet, calves, arms are flexed at elbows and fingers flexed on forearm, yielding to forcible extension, but flexing again.

In combinations where the metal element is less predominant, or where the remedy has not been proved and hence a full pathogenesis not developed, we find the cramp element disappearing as in *Ferrum aceticum arsenicosum*, *bromatum*, *carbonicum*, *iodatum*, *phosphoricum*, and *picricum*.

It is noteworthy that all pure metals are more or less "crampy," *Cuprum*, *Ferrum*, *Iridium*, *Mercurius*, *Plumbum*, *Platinum*, *Stannum*, *Zincum* leading in this indication. The vegetable world, too, draws from the earth and compounds organically these self-same elements. Accurate chemical analyses of plant remedies might make clearer some of their actions.

Retrospectively the patients of *Ferrum* or its compounds might be keynotely sketched as follows:

Ferrum metallicum.

Excitable; sanguine temperament; flushing blushing weakness.
The heart suddenly bleeds into the blood-vessels, and as suddenly draws a reflux, leaving pallor of surface.
Hæmorrhage, menstrual, nasal or elsewhere, with fiery red face. Sanguineous excitement.
Hammering, pulsating, congestive headache, with distinct anæmia.
Midnight aggravation.
Symptoms better after rising, by walking slowly about.
Intolerance of *eggs*.

Ferrum arsenicosum. (Unproved.)

Enlarged liver, enlarged spleen, both with continued high fever, without thirst. (Cf. the *iodatum.*)
Constipation predominant.

Ferrum bromatum. (Partially proved.)

Spermatorrhœa with anæmia, debility, depression (?).
Uterine prolapse, with sticky, excoriating leucorrhœa.
Dead, numb feeling of the scalp.

Ferrum iodatum.

Enlarged spleen, enlarged liver, both without fever.
"Sweet-smelling" urine; light in color (?).
Abdominal fulness even after but little food.
Scirrhus near right nipple, small and painless at first, then with lancinating pains to axilla, sensitive to touch. (Clinical; cured.)
Dreams that he has grown large, gigantic; everything about is small insignificant (in the dream).
"Scrofula," glandular enlargements, tumors.

Ferrum magneticum.

Spasmodic amaurosis.
Painful sensibility of teeth when chewing.
Tinglings, prickings (Cf. Faradic current), itchings, contractions.

Ferrum muriaticum.

Right shoulder rheumatism ; generally a right-side remedy.
Pain in the spleen.
In hæmorrhage the blood is thick, black, viscid fluid.
Headache and neuralgia of right face and head.

Ferrum pernitricum. (Not proved.)

Cough, with florid complexion.
Scrofulous children with enlarged glands and obstinate ophthalmia. (Cf. *Ferrum* and *Nitric acid.*)

Ferrum phosphoricum.

First stage of inflammations, with less bounding pulse than *Aconite*, and without *Aconite* mentality.
Painless irritability of fibre.
Aversion to meat and milk.
Right shoulder rheumatism.
Agg. 4-6 A.M.; agg. at night.
With the cough, spurting of urine.
Rheumatism goes from joint to joint, high fever, agg. by motion.

Ferrum phosphoricum hydricum.

Right-sided ; dull right headache ; right eyelids smart ; right ear feels as if penetrated by a stick on going to bed.

Ferrum picricum. (Not proved.)

Dark, bilious, " liver " patients.
Multiple warts on the hands.
Chronic deafness ; with old pedunculated warts.
Deafness from diffuse auricular vasculitis (not neural deafness).
Prostate enlargement.

Ferrum pyrophosphoricum. (Not proved.)

Cerebral congestion and congestive headache following great loss of blood.
If *Ferrum phosphoricum* fails to remove tarsal cysts, Cooper says give *Ferrum pyrophosphoricum.* (Clarke.)

Ferrum sulphuricum.

Atony ; congestions.
Eczema with sluggish liver.
Frequent headache between menses, which are copious and colicky.

Ferrum tartaricum. (Unproved.)

A 15 gr. dose produced sensation of great weight on upper head, with gloomy fear of apoplexy. (Berridge.)

Ferrum aceticum has been commended for chronic painless diarrhœa of malarious origin ; *Ferrum carbonicum* for crampy pains in lower limbs.

The investigations of Baron Reichenbach (1854) on the action of metals on individuals of a hypersensitive nervous development (and hence open to influences not perceived by the normal or average sensory apparatus) are of permanent scientific value.

In his electro-positive (od-positive) series, as determined by his hypersensitive human instruments (Reichenbach himself was normal in nervous development, but verified this particular investigation through thirty-eight several hypersensitives at various times and places) he places *Bismuth*^{7}, *Cadmium*^{12}, *Chromium*^{2}, *Cobalt*^{6}, *Copper*^{25}, *Gold*^{22}, *Iridium*^{10}, *Iron*^{21}, *Lead*^{16}, *Mercury*^{35}, *Nickel*^{6}, *Osmium*^{7}, *Palladium*^{11}, *Platinum*^{12}, *Potassium*^{9}, *Rhodium*^{5}, *Silver*^{18}, *Tin*^{10}, *Titanium*^{4}, *Zinc*^{8}.

In the electro negative (od-negative) group, including some non-metals, *Antimony*^{7}, *Arsenic*^{7}, *Bromine*^{3}, *Carbon*^{6}, *Iodine*^{5}, *Phosphorus*^{6}, *Selenium*^{12}, *Sulphur*^{30}, *Tellurium*^{16}.

(The indices represent a relative intensity of action on his hypersensitive instruments.)

In the electro-positive (od-positive) metal group we find curiously summarized our cramp and convulsion remedies arranged, we might say, almost according to their homœopathic value in these conditions, viz. :

Mercurius^{25},
Cuprum^{24},
Ferrum^{21},
Argentum^{18},
Plumbum^{16},
Platinum^{12},
Cadmium^{12},
Palladium^{11},

Thus we see the verification of drug pathogenesy by an entirely extra-medical investigator, for Reichenbach was a chemist and physicist a contemporary and friend of Berzelius, making no pretension to medical knowledge.

The limits of magazine space preclude an exhaustive treatment of the *Ferrum* group. Perhaps the foregoing may be of some interest to some readers and students.—*Homœopathic Recorder*, March 15, 1905.

Acknowledgments.

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MEDICAL EDUCATION IN INDIA.

The slow growth of our Medical Colleges serves as a suitable comment for all things connected with India. Even the western education is lapsing into the eastern dormancy. The Europeans who impart it are gradually falling into that terrible African Sleep. It reminds us of Lord Tennyson, who said :

> "Thro' the shadow of the globe we sweep into the younger day :
> Better fifty years of Europe than a cycle of Cathay."

The pernicious intellectual anæmia of India is making a sure grasp of its European inhabitants. The Anglo-Indians in the service of the Government are not without that detrimental influence. The Indian contagion of dormancy is spreading on all sides. The medical service is generally losing that healthy influence which we used to see before. Goodeves and Macnamaras are no more. Their eminent colleagues, Fayrer, Chevers, Partridge and Chuckerburty leave names behind them to be recollected by their Indian students. Their sympathy presents a glowing picture in contrast to the marked gloomy antipathy of the present days. Medical education has taken rather a retrograde step in India than before, though the advancement of its various branches is a conspicuous thing in the west. Clinical lectures are characterised by style and paucity which make the unsympathetic behaviour of the professors more disgusting. The students are not encouraged to question their teachers for some reason or other. It was a labour of love in former days. Eager to attract the advances of students the professors of olden times showed a genuine feeling of kindness. Repulsion has, now, taken the place of attraction. Perhaps the Indianised electricity of the same kind has produced this mischief.

The hospital attendance has always been rigorously enforced. In former days, physicians and surgeons would think it a compulsory duty to attend the hospital in the morning as usual. Clinical lectures were of frequent occurrence by the bed side of the interesting cases. None of them would go away silently for a day without imparting any useful instruction. Their calls for practice were many, but none would depart out of the hospital by merely asking his assistant, "Is there any important case." The second fiddler knows how to oblige his master.

In modern days Mammon worship has taken a prominent place. The word which is passing with an electric force among the Anglo-Indians in service is "Make money, go home quick." India has become the land of the milch-cow without commensurate gain. The glowing fact is that medical knowledge generally among men of the Indian Medical service, is not of praiseworthy character. There are a few specialists who look to their future gain from appointments in England. They are research scholars, but an infinitesimal quantity of their knowledge rarely permeates to the senior students who anxiously await the success of their deserved teacher.

With this kind of indifference and apathy of the professors the Indian students are charged with neglect of study. Sympathetic teachers like Goodeve, Chevers, and Smith tried to compensate the deficiency by rigorous education. From the days of Dr. Bomford, the students of the Calcutta Medical

College suffer from many oppressive rules, which never existed before, and perhaps do not exist in England. He has signalised his medical administration creating a feeling of disgust towards the college. The medical institution having a singular existence in the province of Bengal thinks itself authorised to create any rule or regulation contrary to the established practice, and having no precedent in the east or west. Dr. Bomford is no longer the principal of the Calcutta Medical College. He has now become the Director-General of the Indian Medical Service. With his heavy work, it suits him to be a medical reformer of the students of the college. We thought that his elevation would be a source of relief, but his undue eagerness for the medical welfare of Bengal created a fresh anxiety.

A special meeting of the Senate of the Calcutta University was held on the 8th July last, under the presidency of the Vice-Chancellor, to consider a proposal for the extension of the medical course from five to six years.

" Surgeon-General Bomford moved that the Medical Course be extended to six years. He said that the medical opinion was, for the most part, in favour of the extension. With the exception of the Principal of the Madras Medical College, the Principals of the Medical Colleges in India approved of his proposal. The majority of the Medical Faculty had voted for it and even the minority would agree to an additional year of practical work, if the M.B. Degree was awarded at the end of five years, which could not very well be as there was no law to restrain a passed M. B. from practising during the year intended for practical training. The importance of practical work was being more and more recognised in England, but here, even with the present course of studies, the lectures so crowded upon one another that very little time was left for practical work and the difficulty would be greater, if the course was improved, as it was bound to be. Having regard to the class of F.A.'s with whom the College had to start, the first year had to be devoted to preliminary work and could hardly be counted as a medical year. The opinion of the Universities Commission that five years were sufficient was of little value as there was no medical expert on the Commission."

The collection of opinion by Dr. Bomford included in his favour the universities of Bombay and Lahore. That of Madras was against him. Out of the three the two were for him. This was the preponderating influence. The Bombay Medical College is still open to those who have passed the matriculation examination. Here lies the essential difference between Bombay and Calcutta. As for his majority in the Medical Faculty it was only he himself. Seven voted for it and six against. So far for his majority. The misleading statements should not have come from Dr. Bomford. It is an open truth that he did say nothing of his scheme of six years study at the Universities Commission. We are to be satisfied by his statement that the scheme was in his pocket, though he did not place it before the Commission.

If bad teaching be the fruitful source of mischief, we are at a loss to understand, how a good teaching may come on by the extension of the period of study. The source of evil is in the opposite direction to that complained of. That fountain head of impurity remains unalterable. The recipient's qualification is to be remodelled. The observation coming from the Director General of the Indian Medical Service makes it doubly ridiculous. While this kind of clashing of interest is going on between the teachers and the students in India, we can not view with equanimity the general tendency of the medical profession as represented by the Indian Medical Service. It seems that some kind of latent evil is at work which is productive of many undesirable results. The antipathy between the profession and the students in general is a modern feature of the medical colleges of India. Having the anti-Indian feeling as expressed in his jurisprudence, Dr. Chevers was not without his sympathy towards his students and to the medical profession. Dr. Fayrer had a kind feeling for all his Indian students though he had retired from India. The new generation of professors of medical colleges have gained their evil propensities from sources which are not difficult to be conjectured. This estrangement makes a wide separation between India and England. The quality of medical instruction imparted in India in view of the modern European advancement is an affair not to be disregarded. The Indian Medical Service, taking the sole responsibility of the medical education in India, produces the retrograde movement. When steps are being taken to reconstitute that service according to the need of the Government, it can be seriously questioned whether that will not be another reason for further deterioration of the medical education in this country. Without special knowledge in most cases the members of the service are thought suitable to execute any kind of work in which they may be placed. Some times the ludicrous sight comes to our view of a square man being placed in a round hole, with the assumption that it will admirably suit him. He does not complain of his inconvenience, for he holds a situation which attracts many professional calls. A Sanitary Commissioner of Bengal, being elevated to the post of the Principal of the Calcutta Medical College, was in a necessity to certify himself that he had improved much since his present appointment, to gain the public favour. Instances are not wanting when the new professors had to educate themselves, when they were obliged to lecture on special subjects.

It is enough evident that the qualities of the medical teachers should be improved. The F.A. students are competent to receive instruction if the knowledge is imparted by well qualified men. Perhaps all difficulties will disappear if the professorships are opened to competent men in England outside the fascination of the service. A recent number of the Medical Progress comes to our relief expressing its views on the Professorships in India. It says :

"It has often been a matter of wonder to those who view the question impartially that up to the present the Indian Government has not seen fit to make such arrangements for the appointments to professorships in the Medical Colleges of India as would secure the services of men with a special knowledge.

of the subject they have to teach. As things stand now, none but commissioned medical officers can be employed, and they are in many cases appointed to chairs for which they have no special fitness and for which they have had no special training. In these countries it is considered that a man should spend many years in the study of a subject before he is called on to teach it, but in India no such training is regarded as necessary. More over, even when a man be appointed to a professorship, he does not, as a rule stick to his subject as a speciality, as do professors in other parts of the world. The same officer may be this year professor of chemistry and next professor of midwifery or medicine, without having ever undergone any special training in any one of the subjects. 'It is no discredit to the officers of the Indian Medical Service to suggest that they are not competent merely *ex-officio* and without any special test of knowledge to discharge the duties of professors in all subjects at the Indian medical colleges. It is right that these officers, if they show fitness for a post, should get the preference over other candidates, but it is not right that others, and in many cases more suitable, candidates should be rigidly excluded.' Many of these chairs carry with them emoluments sufficient to attract expert teachers from these countries, and it is unjust that in such cases the Indian students have to put up with what often can only be considered second rate teaching."

This expression of opinion, from the Medical Progress, throws an additional light on the action of Dr. Bomford for his effort to extend the medical course from five to six years. The fault was wanted to be remedied in a way which would have proved utterly futile except to place an additional hardship on the students. Had he the power to understand the nature of the disease, a suitable remedy would have been administered. His own ignorance, knowingly or unknowingly, was covered in a manner which clearly pointed out the real source of the trouble. It is the Indian Medical Service which is at fault and not the students. The men of that service can be suitable to the needs of the Government, but their services in general can not be advantageous to the Indian medical colleges. The manœuvre in the senate of the University of Calcutta on the 8th July last is a marked sign of the time.

ELIE METCHNIKOFF AND HIS STUDIES ON HUMAN NATURE.

By B. L. Chaudhuri, B.A., B.Sc. (Edin.)

Metchnikoff is an expert of experts in the Science of life—and has gained the right to a hearing by forty years of patient devotion to brilliant researches. The discoverer of the phagocytes is of course known to-day in every laboratory, but to the general practitioners or mere medicine men his name may not be so very familiar, which is our only excuse for a word or two at the outset about his career and position.

By birth a Russian, Metchnikoff is a graduate in Science of the university of Kharkoff and was a Professor of Zoology at Odessa till 1882 when he had to resign the post owing to the political troubles that followed the assassination of the Tsar Alexander II and had to leave Russia subsequently. In 1888 he joined Pasteur and at once became his most distinguished disciple and now is the Director of the Pasteur Institute in Paris. Since the death of Pasteur the credit of all the startling discoveries of the Institute lies between him and Dr. Emile Roux his chief co-adjutor.

Metchnikoff's field of investigation in his earlier career was chiefly confined to Zoology, specially to embryological history of the lower vertebrates.

The Baconian economists who openly discourage any tree of knowledge that does not give immediate promise of marketable fruit, who can tolerate chemistry only because it has given them aniline dyes, can extend their patronage to Botany simply for its helping them about the drugs and can grudgingly justify the pursuit of physical sciences only for their providing them with telegrams and telephones, may find it really difficult to believe that from many years of patient researches in minutely tracing the development of insects, echinoderms, worms and Jelly fish—all of remote and of inhuman interest—Metchnikoff at once did pass to results affecting most vitally the progress and the very existence of the human race.

The book under notice is stated by the author to be really a programme of work for younger investigators. It is therefore addressed to disciplined minds and in special to Biologists and Medical men. It has for its main thesis and tries to explain, the causes of the organic changes that leads to old age, and also suggests remedies to put off the advent of old age and measures to prolong life with a view to attain Natural Death. As the first and at present the only scientific expositer of death and old age, the book should be very extensively read by the medical practitioners and physiologists. In the following lines culled from this book and elsewhere we propose to give some brief outlines of the subject matter dealt—fully believing that glimpses however imperfect will rouse in the readers sufficient enthusiasm to get hold of the entire work, and that is again our only excuse in attempting this imperfect narrative.

Metchnikoff's classical discovery about the function of the white blood corpuscles is known to every body. Owing to the useful work these white blood corpuscles perform in eating up all sorts of solid bodies which are not wanted by the system, they were named by him Phagocytes (voracious cells). Metchnikoff has now further distinguished in them two distinct classes—small mobile phagocytes called microphags which rid the body of microbes, and large phagocytes which are sometimes mobile and sometimes fixed and which normally cure the system of mechanical lesions by absorption (such as wounds or blood clots in the brain in apoplexy). These have been termed Macrophags.

The microphags are produced in the bone marrow, circulate in the blood freely and occur as some of the white blood corpuscles (leucocytes). They are to be distinguished by their oval shape, which facilitates their easy passage through the smaller blood-vessels and allows of their accumulating in great numbers in the exudations that form around microbes. These phagocytes appear to be endowed with a sensitiveness of their own and by means of a sense of smell or taste able to recognise the nature of these surroundings. According to the impression made upon this sense, they approach the object which arouses it, exhibit indifference to it or withdraw from its vicinity. When however an infectious microbe finds its way into the body the microphags are attracted by its excretions and swarm into the exudations surrounding it. The macrophags possess single unlobulated nuclei and occur as white corpuscles in the blood, lymph, and exudations or as the fixed cells in connective tissues, the spleen, the lymphatic glands, &c. The absorption of extravasation of blood and the healing of wounds are the normal work of macrophags.

One of the signs of the old age is that this role of the macrophags is reversed and that they attack the parts which they once defended. For example they attack the nerve cells of the brain or the hepatic ducts of the liver, resulting in the production of connective tissue in their places which blocks the system and leads to the death of the part of the organ so attacked. These macrophags attack the colouring matter of the hair (then termed chromophags) and thus cause the whitening of the hair, which is as a rule the first visible sign of approaching old age. By elaborate researches Metchnikoff and M. Veinberg have clearly proved that the extreme porosity of the bones of old people is due to the action of these macrophags, the atrophy of the kidneys in old age is brought about by them by their first appropriating the renal tubes they proceed to form connective tissue with which then the normal renal tissue is replaced. Through the instrumentality of these macrophags, neuroglœa (nervous connective tissue) takes the place of nerve cells in the brain of old persons and animals which carry on the higher functions of intellectuality, sensation, central movements, &c. In the liver the hepatic cells are absorbed by them yielding place to connective tissue (cirrhosis), the arterial sclerosis in old people is nothing but a degeneration in the arteries produced by these phagocytes and as already alluded, the brittleness of old peoples' bones is due to the absorption and destruction of the frame work brought about by macrophags.

The extraordinary activity acquired by macrophags during old age for destroying the normal character of the higher organs is very much similar to the phenomena that are characteristic of certain chronic diseases. Arterial sclerosis in old persons is just similar to organic sclerosis set up by various morbid influences and is actually an inflammatory disease. The senile decay of the kidneys is analogous to chronic nephritis commonly called interstitial nephritis. The destruction of nervous cells through the agency of macrophags is a common occurrence in general paralysis of the insane.

From these parallelism between ordinary diseases and the symptoms of senile decay, E. Metchnikoff has concluded that the degeneration of tissue elements in old age is in reality in the nature of diseases and as such should be curable and what is more ought to be preventible by strengthening the higher elements (the organs) and by weakening the aggressive capacities of the phagocytes (macrophags).

This has been made possible in a very curious way since the discovery of "Cytotoxic Serums" by M. J. Bordet of the Pasteur Institute. The specific properties of these serums and the results obtained by them have been confirmed by investigators in other countries.

To make the principles underlying the method of obtaining these cell-poisons clear to those who have not carefully followed the history of these discoveries, perhaps it will not be out of place if we cite a few of these experiments.

If to a colourless transparent serum prepared from the blood of a rabbit a few drops of blood drawn from another rodent of allied species (say a guinea-pig) be added—the blood of the guinea-pig preserves its normal colour, and its red corpuscles remain practically unaltered—nor any special change is noticed when we add a colourless serum drawn from the blood of the guinea-pig to the colourless transparent serum of the rabbit.

But if a serum be prepared from the blood of a rabbit into which there had been first injected the blood of a guinea-pig—the addition to it of some drops of guinea pig's blood though at first makes it red and opaque—the mixture soon becomes transparent and assumes the colour of diluted claret, due to the solution of the red corpuscles of guinea-pig in the specially prepared blood serum of the rabbit.

On the other hand if blood serum of guinea pig be added to the blood serum of a rabbit into which there had been first injected the blood of a guinea pig, a disturbance in the mixture occurs almost at once which leads to the forming of a precipitate.

Thus the injection of the blood (red corpuscles) of the guinea-pig into a rabbit has therefore changed the serum of the latter by introducing two new properties: (1) that of dissolving the red corpuscles of the guinea pig and (2) of giving precipitate with the blood serum of the same animal.

Similarly by injecting other cellular elements in place of red corpuscles, serums are prepared having specific action on those very elements. Cells of the liver or of the kidney taken from one animal are injected into another animal of allied species. After several injections have been made, the serum of the animal operated on becomes active with respect to the cells introduced into the body. The serums thus obtained are specifically cytotoxic—that is to say they poison particular kinds of cells.

Then came the most remarkable discovery—that these specific poisons if employed in very minute doses not only not kill or dissolve the specific tissue elements but actually strengthen them. For instance whereas a large dose of the prepared serum will destroy red corpuscles—small doses of the same serum will increase in the blood the number of the very red corpuscles themselves. Thus in their action these serums are comparable to poisons like digitalis—which kill in strong doses but which in small doses improve or strengthen the action of certain tissues. Anæmic subjects have received undoubted benefit by the treatment at the hands of Dr. Beluovsky of St. Petersburg with the specific cytotoxic serum. Thus definite results have been arrived at of employing different cytotoxic serums for strengthening of the higher elements of the human body to resist the attack of Macrophags.

The strengthening of these higher elements with the help of cytotoxic serum is not the only thing we must do in trying to find a cure for that chronic infectious malady which we call old age. From the consideration of cure and treatment we must come to think about the possibility of prevention and in order to be able to do that we must find out the very root of the causes of senile degeneration. From the analogy between certain diseases and the senile decay Metchnikoff has shown that there must be a common cause. Let us examine carefully what that cause may be.

Sclerosis of the brain, kidneys, and liver frequently originate in intoxication by poisons such as alcohol, lead, mercury, or the disease may be induced by some virus (e. g., the virus of syphilis). Doctor Edgren's Monograph on "Arterial Sclerosis" makes one case in every five caused by syphilis and it also shows that quite 25 per cent. are due to chronic alcoholism. Thus these two factors taken together are responsible for nearly half the cases of arterial sclerosis that occur. Syphilitic virus and alcohol act as poisons which bring about first degeneration and brittleness of the arterial walls and eventually a weakening of the higher elements of the organisms. The phagocytes being cells of an inferior order, are less sensitive to these poisons which account for their victory over the poisoned elements. The virus of syphilis is a specific poison produced by the micro-organisms of syphilis (these organisms were first discovered by Mon. Bordet and Gengon—which now have been, as late as last May, confirmed by Metchnikoff and Roux). This specific product causes infection or poisoning, and brings about arterial sclerosis, general paralysis and other serious ailments. Alcoholism is a poison arising from fermentation excited by a microscopical fungi (Yeast) related to true microbes. Instances of arterial sclerosis which are due neither to syphilis nor to Alcohol has to be accounted for. It is an undoubted fact that many people who live most sober lives become prematurely old—that is to say are afflicted with so-called physiological sclerosis. According to E. Metchnikoff this is due to the poisoning set up by the mass of microbes (though less virulent than that of Alcohol or of syphilis) congregated in the large intestine.

Among these microbes there may be some that are harmless, and possibly even beneficial, but there are undoubtedly a great number the presence of which is extremely prejudicial to health and life. The remains of undigested foods and the mucous secretion form a medium very favourable to the growth of microbes. The soluble excretions (all rank poisons) produced by them pass into the lymph and blood. The stagnation of the contents of the large intestine increases the amount of phenol, indol, creosal, skatol, &c., in the urine and excretion. These facts and many others had led Metchnikoff to conclude that substances just enumerated are the products of the bacterial flora of the intestine and that these or their derivatives being absorbed and passed into the general circulation act as poisons on higher tissue elements. Baumann, Ewald and others equally eminent in science have confirmed the results that they are products of the large intestine and the sources of many poisons harmful to the body. It is among such substances that we must look for the slow poisons which in the absence of syphilis or alcoholism produce the arterial sclerosis and of old age.

The development of the large intestine in mammals is mainly due to advantages in the struggle for existence for (1) digestion of cellulose and (2) to enable the animal to run long distances. But men have outgrown these two necessities: by use of cooking and the cultivation of plants of high nutritive value he is able to dispense with the digestion of cellulose and because men have no longer to secure his prey or escape from his enemies by the rapidity of locomotion without stopping.

Thus with the vermiform appendix and the cæcum the Large Intestine has from a long time lost all its usefulness—and on the other hand has become a seat and source of danger in various ways.

In the varied flora of the large intestine there exist microbes—termed anaerobic—because they are able to live in the absence of free oxygen, obtaining what they require by the decomposition of organic matter. Such decomposition is attended with fermentations and putrefaction and the production of poisons as ptomaines, fatty acid and true toxins.

In the investigation of the factors that hinders putrefaction it has been noticed that milk putrefies with considerable difficulty, whereas meat preserved under the same conditions decomposes very readily. Investigations recently made by Bienstock and Tissier and Martelly ' have proved the existence of certain microbes in milk that hinder the putrefaction of it. There are in particular the microbes that cause the formation of Lactic Acid which are antagonistic to the microbes of putrefaction which multiply only in an alkaline medium. The Lactic Acid microbes produce large quantities of acid and so hinder the multiplication of the organisms of putrefaction. Such facts explain how it is that lactic acid frequently stops some cases of Diarrhoea and why treatment with lactic acid is so useful in maladies associated with putrefaction of intestinal contents. It is plain then that the slow intoxication that weakens the resistance of the higher elements of the body and thus then indirectly strengthens the macrophags may be prevented by the use of soured milk.

It is not enough merely to introduce useful microbes into the body, we must also prevent the entrance of harmful ones from outside—we should eat no raw food but confine our diet rigidly to food that has been thoroughly cooked or sterilised. If it be found impossible to eliminate all the harmful microbes from the flora of the intestines those that are refractory may be rendered harmless by appropriate serums.

It is clear from what have been stated above that Humanity would make a great stride towards longevity if alcoholism could be stopped which is the cause of 25 per cent. of the cases of arterial sclerosis—and suppression of syphilis the second great factor in the production of senile degeneration of the arteries, will produce a still more marked extension of the term of life—and the additional means suggested above to modify the pathological character of old age, will make life longer and happier.

With due prolongation of life will come the instinct and the evolution of natural and physiological death. What it is like and how long will it extend are questions Metchnikoff has very ably discussed in the book but to enter into which will be beyond the limit of this notice.

However it is felt that this short analysis can not end better than by quoting the concluding remarks put into the mouth of Metchnikoff himself by the reviewer in the Times, of Metchnikoff's original French edition of the book.

" My friends, return to nature, lead a simpler life, diminish the number of your desires, and believe that old age may cease to be a terror. From 20 to 50 a man should live for himself and his family; from 50 to 100 for science and humanity and after a hundred for the State. Honoured, useful, in full possession of all his faculties at six score years and ten, the grey-beard of the approaching future will be among the most enviable of mankind. For the fear of death is an aberration. The fact is that only one man in a million at present dies a natural death. We should live till 140 years of age. A man who expires at 70 or 80 is the victim of accident cut off in the flower of his days and he unconsciously resents being deprived of the 50 years or so which Nature owes him. Leave him a little longer, and in due time he will desire to die as a child at dusk desires to sleep."

REVIEW.

The A, B, C, Manual of Materia Medica and Therapeutics. By G. Hardy Clark, M. D., late Professor of Materia Medica, Hahnemann Medical College, Chicago. Second edition, enlarged—cloth. Dollar 1-25. *Philadelphia Bœricke and Tafel,* 1905.

In the preface to the second edition it has been said that a clinical index has been added. It is no doubt a valuable reference, for beginners. Within 181 pages, the author has taken into consideration 103 useful medicines of our materia medica. The author has given the characteristic symptoms, the toxic effects, the dose, and the therapeutic uses of each medicine. He has tried as far as possible within this short space to help the new students of homœopathy. Perhaps his low attenuations will not find much favour with the high dilutionists who prefer nothing lower than thirtieth. It will be safe for the students and beginners of homœopathy to adopt the middle course and mostly use thirds and sixths. Then they shall be able to proceed with their own experience.

Homœopathy explained. By John Henry Clarke, M. D., cloth 2s. nett and paper cover 1/6 nett. *Homœopathic Publishing Company,* 1905.

The author is well known to us and the homœopathic public of all countries for his Dictionary of Practical Materia Medica and its Repertory, and more so as the present editor of the useful homœopathic journal, the Homœopathic World. The book is dedicated to the members of the British Homœopathic Association. The author begins with his own conversion to homœopathy. After his graduation at Edinburgh he went to New Zealand. He was staying there with relatives who happened to be devoted to homœopathy. Then he went to see the homœopathic dispensary of that place at Hardman street. He says that he went like Caesar, and saw it, but he was on the contrary conquered. It is a step less than that of the great Caesar. The latent proclivity which led him to adopt the course, possibly was the fact that he sided with the well known saying of Oliver Wendell Homes, "If all drugs were cast into the sea, it would be so much the better for man and so much the worse for the fish."

During his observation at the Liverpool Homœopathic Dispensary, he met with a case for private treatment. We now use his own words. "A small boy of five, a relative of my own, was brought to me by his mother. Two years before, he had been badly scratched on the forehead by a cat, and when the scratches healed, a crop of warts appeared on the site of them. And there they remained up to that time in spite of diligent treatment by the family doctor." Then he gave Thuja which cured the child.

After a brief survey of Hahnemann's life, he comes to the disputed theory of psora. Without entering into the discussion of the psoric theory, we can only say that malaria is neither syphilis, nor sycosis and never psora. It has a separate existence besides them. Living as we do within the horrible ravages of malaria, all theories avail us little in curing the disease. The other interesting chapters are devoted to the infinitesimal dose and the examples of its cure, the case of oversensitiveness of Caspas Hauser, and his conclusion—that is homœopathy in aphorisms. The admirable fact is that within the short space of 192 pages, the author could condense so many useful information for all lovers of homoeopathy.

Manual and Clinical Repertory of a complete list of Tissue Remedies. By Dr. Med. Eric Graf Von Der Goltz. Bœricke and Tafel, 1905.

The book of tissue remedies has received an additional importance for containing a well digested materia medica according to the ideas peculiar to the system, and a semiotik or clinical repertory for the use of the remedies. The few metals and non-metals that comprise the list of tissue remedies find a useful application in this little book.

EDITOR'S NOTES.

A Practical Investigation of the Effect of Preservatives Upon Digestion And Health.

The remarkable experiments undertaken at the instance of the United States Department of Agriculture by Dr. H. W. Wiley, chief of the Bureau of Chemistry, with the view of determining the effect of certain preservatives upon digestion and health, have been concluded so far as boric acid and borax are concerned. A very interesting and complete account of the experiments, which were conducted on human subjects, has been issued. The report undoubtedly contains the most valuable contribution that has ever been made on this subject. The work has been conducted with admirable care and with a splendid regard to detail. 12 persons were selected for the purpose who were kept under constant supervision, including medical examination directed to the blood, the temperature and pulse, and the body weight. The preservatives were administered in foods which were analysed as regards their contents of water, fat nitrogen, phosphoric acid, and heat-producing equivalent. The urine and the fæces were analysed. It may be imagined what a great number of analyses were thus involved and also what special difficulties there were connected with the work. While the results showed no startling record of symptoms there was distinct evidence of impairment of normal health in many cases. When boric acid or its equivalent in borax is taken with the food in small quantities not exceeding seven and a half grains a day no notable effects are immediately produced. Long-continued exhibitions of small doses or large doses extending over a shorter period showing in many instances a manifest tendency to diminish the appetite and to produce a feeling of fulness and uneasiness in the stomach which in some cases result in nausea, with a very general tendency to produce a sense of fulness in the head often manifested as a dull and persistent headache. In addition to the uneasiness produced in the region of the stomach there appeared in some instances sharp and well-located pains, which, however, were not persistent. These sensations disappeared as a rule when the preservative was withdrawn. The administation of boric acid in quantities of from 60 to 70 grains per diem continued for some time resulted in most cases in loss of appetite and inability to perform work of any kind. In many cases the person became ill and unfit for duty. It would seem, therefore, that 60 grains per day is the limit of exhibition beyond which the normal man may not go. Most of those under observation were able to take 45 grains a day for a somewhat protracted period and still to perform their duties. They, however, felt injurious effects and it would seem certain that the normal man could not long continue to receive this quantity per diem with impunity and in some instances even seven grains per diem appeared to have a disturbing effect upon the normal health. The conclusion seems to be warranted, therefore, that both boric acid and borax when continually administered in small doses for a long period or when given in large quantities for a short period create distrubances of appetite, of digestion, and of health. These results, it seems to us, must gain acceptance considering the eminently practical way in which they were obtained. We look forward with very great interest to the indications which further experiments may give with other preservatives. In the meantime we congratulate Dr. Wiley on the patient, painstaking, and practical way in which he has approached the question and a word of praise is due to those men who voluntarily submitted themselves to the experiments.—*The Lancet*, July 1, 1905.

A Proving of Iridium Chloride.

By H. A. Roberts, M. D., Derby, Conn.

The proving was made with the 3x potency, using 2-grain powders once in two hours. The subject was a male, 34 years of age, medium height and weight, dark hair and gray eyes. I have arranged the symptoms in their order, and will later give the time of development of certain conditions that may be of interest.

Mind. Very difficult to keep mind on subject of work or current of thought, even when great effort was made to arouse one's self.

Sensation as if the mind was void, coming on in the course of one's work, amounting to almost transient unconsciousness.

Sensorium. Confusion of thoughts. Sensation as if two or three antagonistic lines of thoughts were striving for the mastery.

Head. Constant sensation as if liquid lead were in the right occiput, weighing the head over to that side ; in fact, so pronounced was that sensation that the prover would hold his head over to the right side.

Occasionally sharp, darting pains in the right side of head.

"Woodeny feeling" in whole right side of head.

Very severe, sharp pain in right parietal region, in afternoon, of a neuralgic nature.

Outer Head. Right side of scalp sensitive to touch.

Eyes. Sight not clear and distinct ; letters run together.

Inclination to rub the eyes, with the hope of clearing sight.

Pupils contracted.

Nose. Profuse, watery coryza ; sneezing ; > indoors, by the fire.

Posterior nares feels raw and inflamed.

Profuse, thick, yellowish discharge from nose.

Lower Face. Stiffness of jaws, especially on right side, so much so that it is painful to swallow.

Parotid gland on right side sore to touch.

Difficult to open mouth to eat.

Mouth. Tongue, right side, coated thick and white ; left side clear.

The line of demarcation followed the frænum exactly.

Mouth constantly filled with a profuse, frothy saliva, necessitates constant swallowing.

Gums and teeth sore ; hurts to chew.

Throat. Rawness on right side of throat along the pillars of the fauces ; right tonsil red and inflamed ; pharynx red and inflamed.

Soreness more marked on swallowing.

Appetite, Thirst, Etc. Appetite poor ; a little satisfies.

Thirst during fever.

Voice. Hoarseness, < by talking ; trachea scrapes on coughing ; feeling of rawness all through trachea and bronchi.

Cough. Hoarse cough, < by talking ; hard, dry, spasmodic cough wracking whole frame.

Sensation of exhaustion after cough.

Cough brought on by talking or exercise.

Back. In left sacro-iliac synchondrosis, a dull, heavy, dragging pain, as if joints were weak.

Nerves. Very sensitive to noise or confusion.

Fever. Temperature 109 ; thirst during fever ; malaise and tired out feeling.

Sweat up and down back on awaking during fever.

Aggravation. Talking (hoarseness and cough) ; exercise (cough) ; motion (headache).

Amelioration. After eating (nervous conditions).

The symptoms first produced were the salivation and stiffness of the jaws, which increased for two days, and then subsided as the head and nervous symptoms gained in prominence. The nervous symptoms were of some days' duration, and did not disappear until the congestion in the nares and bronchi had gotten well under way. The nervous symptoms continued as long as the drug was taken. The cough was the last sign of its effects.

I have not used the remedy on the homeopathic application as yet, for I have had no cases on which to try it. I would like to see the remedy proven upon a woman, for I feel sure it has symptoms that would be of value in that sphere. The dragging pain in the lower back was very marked before the prover stopped taking the drug.—*Medical Advance*, June 1905.

The Creation of Life by Artificial Means.

BY ENOS BROWN.

To create life and control its form at will is, confessedly, the ultimate objective of a school of physiologists of which Prof. Jacques Loeb, M.D., of the University of California, is conceded to be its most advanced, profound, and confident apostle. Startling as this announcement of the aspirations of the modern scientist may appear to the average thinker, it is based not upon metaphysical or academical speculations, but upon infinitely minute and long-continued experimentation and convincing demonstration. Evidence, which cannot be doubted, has been accumulated, evidence that shows how life can be created by purely chemical means.

Dr. Loeb was from 1892 to 1902 professor of physiology at the University of Chicago. Before coming to the United States he studied at the German universities of Berlin, Munich, and Strasburg. In 1902 he was called to the chair of physiology in the University of California and is now with that institution.

The conclusions of Dr. Loeb, after patient and continued investigations, are incorporated in his latest work, entitled "Studies in General Physiology," a decennial publication of the University of Chicago, 1905. It is a work of an epoch and only to be appreciated by the most advanced students. In these studies the author unequivocally asserts that it is possible to control life phenomena and that such control and nothing less is the true aim of the science of biology. In taking up the problem of regeneration the idea of controlling these phenomena was the starting point, the first aim being to find means by which one organ could, at will, be caused to grow in place of another organ. As far as the problem of fertilization is concerned, the first step toward its solution consists in an attempt to produce larvæ artificially from unfertilized eggs in various classes of animals.

After painstakingly exact and long-continued experimentation Prof. Loeb has succeeded in fertilizing and subsequently in developing eggs of the sea-urchin by employing artificial means alone. In the earlier experiments of Dr. Loeb artificial solutions were used instead of sea water. It has been found that the results were the same when sea water was used.

The most rigid precautions were taken to prevent fertilization by active cells of the same species. To destroy all germs effectually the sea water used was raised to a temperature of 140 deg. All tools, dishes, appliances, and the animals themselves which furnished the eggs, were cleansed in running fresh water. All other precautions were taken against the possibility of developing eggs without fertilization.

The processes by which these amazing results were obtained are stated in the bulletins issued from time to time by the University of California, in which are described the methods of fertilization and subsequent development of the eggs of animals which were the subject of experimentation. One method of treatment consisted in placing the eggs for about two hours in hypertonic sea water, in which the proportion of salt was somewhat increased, and afterward placing them for a few moments in normal sea water to which a minute quantity of ethyl acetate had been added, the eggs then taken from this mixture and placed in normal sea water, when membranes formed. Almost without exception each egg developed into swimming larvæ. With such simple means as a weak solution of vinegar acid and a strong solution of common salt the experimenter may duplicate in the laboratory the results of one of the most typically vital processes.

Chemical substances in skilful hands can be made to produce effects upon eggs which imitate, in all essential respects, the results of normal fertilization. Large numbers of larvæ of sea urchins, normal and healthy, may now be produced from the egg by purely chemical and physical means.

In this the scientist is able to imitate natural fertilization completely, and the fact that a large proportion of larvæ, thus raised, seem to have the same vitality as when produced in regular order arouses the hope that it will soon be possible to undertake the solution of the various problem for which the raising of perthenogenetic larvæ in large numbers is a prerequisite.

Repeated experiments on the fertilization of the eggs of the sea-urchin with the sperm of starfish yielded the result that these eggs can be fertilized and caused to develop not only with the sperm of Asterias but also with the sperm of a brittle star and the sperm of the twenty-ray starfish. Furthermore, mollusks are added to the list of animals in which it is possible by physico-chemical means to cause the unfertilized eggs to develop into swimming larvæ. The hope of students of heredity, who have been looking for the means of raising animals in large numbers for experimentation, which should possess the hereditary traits of one parent only, has been at least attained.

The University of California has published from time to time the papers of Dr. Loeb in which is given at great length the progress of the experiments from which the results, often disappointing but at least convincing, have been finally attained. The immense labor involved can be understood only by advanced scientists, and do not appeal to popular interest. What the outcome may be, only the future, and not a very near future, can decide. The subjection of Nature's forces has taken centuries to perfect, progressing little by little at a time. To create life may be one of the victories of science over nature for the future to achieve.

While occupying the chair of physiology in Chicago, Dr. Loeb had a laboratory at Holmes Holl, a site on the Massachusetts coast. In California, by the courtesy of the faculty of the Leland Stanford, Jr., University, the Johns Hopkins laboratory at Pacific Grove, located at the extreme southern point of the Bay of Monterey, has been placed at his disposal. At this point conditions the most ideal are at the command of the scientist. Probably no body of ocean water on the globe of similar extent is more prolific of marine life in all its forms. The buildings are close to the shore and equipped with every appliance for successful investigation.—*Scientific American, June 17, 1905.*

CLINICAL RECORD.

APPENDICITIS—BIOCHEMICAL CLINICAL NOTES.

By Eric Graf von der Goltz, M. D., New York.

The biochemical treatment of appendicitis in its cures, not only temporary but lasting, against the general and perseverant assertion of surgeons to be a purely surgical disease, causes the publication of the present paper.

My appendicitis cases have seldom come from the start of the disease under my care. Generally one, two or more physicians have had charge of them successively, all concurring in their diagnosis and the final proposition to have the operation performed as soon as possible.

In the biochemical treatment, and further in the cellular-therapeutical one, the following remedies will be called pre-eminently into action:

Kalium muriaticum—exudations, second state of a fully established case of appendicitis.

Magnesia phosphorica—existing tympanitis; pains; rigidity of the abdominal muscles.

Often these two remedies will be found indicated from the moment of taking charge of the case. (In case of any especially high fever without as yet the formation of any infiltration, or only in the first onset of the same—*Ferr. phos.* instead of *Mag. phos.* must be used alternately with *Kali mur.*) In most cases coming out of the hands of other physicians *Kali mur.* and *Mag. phos.* seem to be indicated; as an undeniable harm has most frequently been done by the indiscreetly used ice bag. In the eventual differentiation between the ice bag (so-called freezing methods) and warm application in appendicitis, like in all other diseases. I am guided by the *individual instinct of the patient.*

Under the use of the foregoing remedies we will observe either a speedy cure of a simple form not too far gone (the real feature of appendicitis up to 95 per cent.), or we will find that—if the whole habitus, etc., not contraindicated, our next change of the remedies will be to *Silicea.*

It is remarkable how a few doses of this tissue salt in a high trituration, respectively in high potency, will change the whole picture; I prefer the 30th centesimal potency in this disease.

These three remedies: *Kali mur.*, *Mag. phos.* and *Sil.* form the nucleus for the biochemical treatment of appendicitis.

Intercurrently we must often use the following:

Kalium sulfuricum—evening aggravations.

Natrum sulfuricum—hard, continuous constipation; nausea.

Kalium phosphoricum—intervening high temperature in the later time of the course of the disease with eventual alarming symptoms.

Other remedies must also be called in at times for help, *but those cases are very rare—and ominous: in those cases a certain suspicion of early neglect either from the side of the patient or from the side of the treatment could not be denied.*

If now alarming symptoms of early beginning sepsis are present—*Kali phos.* and *Sil.* in alternation, here in 12x trituration will save the patient in cases *where even great surgeons have met unexpected failures, also where a second operation as a last attempt to help had proved fruitless,* as the annales of the appendicitis operations have shown in an alarming and surprising number between rich and poor patients, private residence and charitable institution.

My observation regarding the necessity of an operation will be only in cases of a large tumor without any improvement of objective and subjective symptoms in about 10–12 hours after the introduction of the biochemical treatment in the individual case.

The harmless dissolution of pus and its final disposition by the physiological means of the organisms through the helpful action of *Sil.* (later *Calc. sulf.* and *Calc. sulphide*) combined with the antiseptic action of *Kali phos.*, *Ars. iod.*, etc., *can be learned and observed only in cases where the family declares that no operation will be allowed.*"

The following case gives the best illustration of a case of this kind:

S. S., nine years old, a girl of slight stature, etc., was sick since November 2, 1899, with clear and characteristic symptoms of appendicitis, and had been treated for such a disease from the beginning of her malady.

As the disease proceeded further and further and the physicians finally all concurred, one after the other, that the operation was the only thing to be done, I was called in November 6.

The patient showed the following characteristic picture : A localized pain, an irregularly shaped distension of the abdomen, fever 103°, constipation, right thigh flexed, the tumor at the lower border of the ileum.

The physicians expected very soon (if nothing was done) a perforation. As the parents declared that no operation would be allowed I began the biochemical treatment. The pulse was 130–160, small and irregular. Medication : *Kali mur.* 6x, five grains (powder) every hour.

November 7th.—Pains undiminished ; temperature, 101°; pulse, 120; same medication.

8th.—Pains undiminished ; temperature, 101°; pulse, 100. Besides *Kali mur.* I prescribed for the pains *Mag. phos.*, as alternating remedy, 6x, five grains (powder) every hour.

9th.—Patient had the first quiet night since November 2d. Same medicines.

10th.—The tympanitis diminished. The tumor now visible, hard, *Silicea* 12x, one three-grain powder every two hours.

11th.—Renewed attack of pains and tympanitis ; tongue brown and dry ; temperature, 102°; pulse, 100. *Kali phos.* 6x, one powder (five grains) every two hours.

12th.—Patient had a good night ; temperature, 98.5° at 7 A. M. and 100° at 7 P. M. ; pulse, 100 (both times). Same medication.

13th.—Patient free from pain ; temperature, 99°; pulse, 100. Tympanitis nearly gone ; patient can extend her right leg slowly without pain. Same medication.

14th.—Patient on the way to recovery. *Kali phos.* 30x, one dose of one-grain powder every four hours.

15th.—Patient continues to improve. Same medication.

16th to 18th.—Continued improvement. *No medication.*

19th.—Last visit—patient cured.

On account of other diseases in the family I had occasion to see the patient on December 10th. I was not able to find any tumor or even any painful spot under the most rigid examination. Patient has never had a relapse to the present day.—*Homœopathic Recorder*, June 15, 1905.

CASES BY DR. STAUFFER, MUNICH.

Translated for the Homœopathic Recorder from the *Allg. Hom. Zeit.*, March 16, 1905.

I

A CASE OF HEADACHE.

On July 10th I visited a patient and found with her Sister A., of the mission, who had come in from the country in order that she might be operated on a second time. She has been suffering for months from a catarrh of the ventricles of the brain, as she told me; and four weeks ago, at the advice of her physician she had submitted to an operation. On account of her intolerable headache, the cerebral cavity was laid open, tamponed for about two weeks, and rinsed out, and, since the pains on the left side did not cease, but, on the contrary, became even more violent, the *nervus supraorbitalis* was resected. Since her pains, after eight days, remained the same, she went back to her monastery and waited. When, in the course of the next two weeks, the pains rather increased than diminished, she went again to the surgeon, who declared that the operation had to be repeated, and even more thoroughly, and the bone would have to be chiseled, as else he could not guarantee a cure. She had determined on the operation in order that she might at last get well, but she required the consent of her abbess, and thus she came by chance in my hands. At the advice of my patient, she desired to make a trial of Homœopathy, especially as I assured her that there was some prospect of a cure. The pains were unintermitted all over the forehead, and especially on the left side; the forehead was somewhat swollen and very sensitive to the touch. At times the ailment increased so much that the burning pains could hardly be endured; warmth gave but little relief, cold was intolerable. During the last days the lancinations and the tearing had also passed to the right side of the forehead and of the head, while the pains radiated to the shoulder-blade and the collar-bone on the right side pressure on the nervus supraorbitalis was unendurable. There were aggravations after getting wearied, and especially before midnight. The patient complained very much of her insomnia, stating that she had not slept for weeks; she, herself, thinks that an examination with Roentgen rays was responsible for the severity of the nerve pain, at least it had set in after that; in the beginning the pain had been only in the forehead. The patient was very anæmic, very nervous, supersensitive, but otherwise healthy. Prescription: *Chininum arsen.* 4 D., alternating with *Zincum val.* 4 D. trit., a dose as large as a pea to be taken every two hours.

Three weeks afterwards another Sister came in from the monastery and reported that the pains had abated after two days, that the patient had been able to sleep the third night, and that the improvement had steadily proceeded, so that now after two weeks she was well. A few days ago I saw the patient again and she declared that she had no recurrence of the pain. She asked for a remedy against her weariness, as the medicines had at that time so strikingly increased her strength. She received *Chininum arsen.* 4 D. trit.

I do not generally prescribe remedies in alternation, as this is always done at the expense of a true knowledge of the case. But in this case, where I could not have the patient under my daily observation, I deviated from my rule, and a favorable result was obtained. But it would have been more satisfactory for the physician if the medicines could have been given in succession. In such a case I would have prescribed first *Zincum val.*, since insomnia was so prominent a symptom. *Chininum ars.* was selected on account of the great anæmia, and on account of the aggravation towards midnight. The medicines also complement each other very well.

II

A CASE OF TUMOR.

I will relate here briefly a case from the year 1899. On May 13th an economist was carried up to my office, as he could not mount the stairs. He was fifty-six years of age, and told me that, up to a short time before, he had been lying in a surgical hospital, where he had been directed that his case might be under observation. In the middle of September, 1898, while lying down in the middle of the afternoon, he had been seized with very violent pain in the left shoulder, so that he could not move his arm any more. He had been treated by his physician with medicine for weeks without effect. In January, 1899, pains in the abdomen and in the small of the back were added, which were very violent when coughing and when taking a deep respiration; in the mean time his pain in the shoulder gradually passed away; but in the left inguinal region a swelling appeared, which gradually increased in size. In the course of February it had become so large that he could not move his hip-joint any more, partly on account of the pain, partly on account of the obstruction of the swelling. His physician now directed him to the clinic. They made a trial puncture, but did not obtain anything but blood, and, while the case was observed farther, they put on it Priessnitz compresses. At first they had suspected an abscess; later on they made a diagnosis of a malignant tumor (sarcoma). On account of the location they declared that they could not operate on it, so the patient left the hospital. When I examined the tumor it was in size like a soup plate; it was in the inguinal region on the right side and extended over to the pelvis and the thigh, and, according to my estimation, it would have weighed about three or four pounds. It sat immovable on the bone; the skin over it was reddened, shining, but movable; the swelling was hard as a stone, very sensitive to the touch; when moving the hip-joint, which was bent in contraction, there were violent pains radiating toward the small of the back. The patient had fallen off, was anæmic, of yellowish complexion and emaciated. He stated that before this he had always been in good health; he denied having had any luetic disease; there is no tuberculosis in the family; he has healthy children. In deciding on a diagnosis an abscess in consequence of caries of a vertebra was first considered; in such a case, as is well known, similar phenomena appear in that region, but the trial puncture had shown no pus. An affection of the joint was excluded owing to the position; nor was it a disease of the glands, since the inguinal glands lay above the swelling hard and movable. Nothing remained, therefore, but to suppose a malignant new formation. I could not get from him any symptoms of importance for a choice of remedies, and so I gave him, without much hope of success, *Silicea* 30, ten pellets to be taken in the morning before breakfast.

May 28, 1899. I visited him at home. There was a freer movement of the joint, he has no more pain, has good appetite and sleep, the swelling retains its size; but he can get up and walks about in the house and in the farm. The same prescription.

June 5. His son reports that he is better, that he looks better, and that the swelling is much diminishing in size. Continued *Silicea* 30.

June 26. The patient comes in himself; he looks bright, is in a good humor; the whole swelling has disappeared, only the inguinal glands remain hard. Prescription: *Carbo anim.* 10, ten pellets to be taken every morning.

August 8. I examined the man again; nothing is to be seen any more either of the swelling or of the glands. Only when the weather changes, he yet feels some pains in the back. The cure is complete and the man to this day is healthy and works hard.

What do we learn from this case? Not that sarcomas can be cured homœopathically; for I am not of the opinion that it was a sarcoma, but a swelling of another kind. The previous rheumatism of the shoulder-joint, the pain in the back, the aggravation from wet weather, all point to the thought that it was a rheumatic affection. The swelling of the inguinal glands, it is true, admits of another explanation. The microscope ought to have decided the matter.

Silicea was selected from our medical treasury, because this remedy has the tendency to make nutritive changes, especially in the cellular tissue; in consequence of inflammations, indurations may appear through copious exudation; these indurations tend to suppuration, but if *Silicea* is given early enough it will cause resorption and will prevent the formation of sores and abscesses (cfr. also furuncles in the neck, etc.). *Silicea* also produces just in the regions of the joints numerous swellings, tumefactions and inspissations; it is a remedy for rheumatism and gout; rheumatism, especially in the shoulder-joints; finally one of the characteristic symptoms of *Silicea* is aggravation through touch. On the basis of these symptoms I explain to myself the action of *Silicea* in this case. A few weeks ago I had to treat a similar case in a woman, sixty years of age. There was a tumor as large as a fist on the right thigh (anteriorly), the swelling was also fixed to the bone and immovable, but the skin was movable; also in this case there was great sensitiveness, but few other points to direct the choice of the remedy. *Silicea* 4 trit., a dose three times a day, effected a cure in four weeks. No allopathic diagnosis had been made of this case, so I will not enter on a more detailed description. —*Homœopathic Recorder*, June 15, 1905.

Gleanings from Contemporary Literature.

THE RELATIONS OF PUBLIC HEALTH SCIENCE TO OTHER SCIENCES.*

BY WILLIAM T. SEDGWICK, MASSACHUSETTS INSTITUTE, OF TECHNOLOGY.

"PHYSICAL science is one and indivisible. Although for practical purposes it is convenient to mark it out into the primary regions of physics, chemistry and biology, and to subdivide these into subordinate provinces, yet the method of investigation and the ultimate object of the physical inquirer are everywhere the same."—Huxley.

Physical science is one and indivisible; that, as I understand it, is the key note of this great congress, of which public health science forms one section, and as I am invited to consider, in the brief space of forty-five minutes, the relations of public health science to other sciences, I shall take the liberty of selecting from the whole number of 'other sciences' only a few, the relations of which to public health science seem to me for one reason or another especially important at the present time. I accept the term public health science without hesitation, for any division of human knowledge which has worked out its own laws with strict adherence to the rules of inductive and deductive reasoning, as public health science has done, and which has reached results enabling it to predict with accuracy, as public health science can now predict, is entitled to a place and an honorable place among the physical sciences.

Public health science had its rise and a considerable development in the eighteenth century. Before that time numerous procedures tending to protect or promote the public health had, indeed, at one time or another existed, but these were largely empirical and quite as often directed to the convenience of mankind as to their sanitary safety. In this class belong the Mosaic code; the water supply introduced into Jerusalem by Hezekiah; the sanitary engineering of Empedocles; the *Cloaca maxima;* the water supplies of ancient Mycenæ and of Rome, and all the earlier, and too often futile, forms of quarantine. Even the art of inoculation for smallpox was only an ingenious knack introduced from the east, where it had been long used empirically, and although it was a public health measure now of the utmost interest and capable at the time of great practical service, it had until recently no scientific basis, but belonged in nearly the same class as the amulets and charms, the prayers and incantations, of the superstitious.

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* Address before the International Congress of Arts and Science, St. Louis Exposition.

It was not until the middle of the eighteenth century, namely, in 1767, that Sir George Baker, by the use of the methods of pure inductive reasoning, made the first scientific discovery in public health science in the subdivision of epidemiology, namely, that the epidemic colic of Devonshire, England, was due to an obscure poisoning by lead conveyed through the common cider used for drinking in that district. In 1774 the foundations of state hygiene and sanitation were laid in consequence of the patient investigations and startling revelations of John Howard, by an act of Parliament providing for the sanitation of jails and prisons. The beginnings of marine hygiene and sanitation appear in 1776, when Captain Cook, the navigator, was awarded the Copley medal of the Royal Society for his remarkable success in protecting the lives of his sailors on his second voyage. In 1796 Edward Jenner, working also in a strictly scientific manner, and employing the methods of rigid inductive research, laid securely for all time the foundations of personal hygiene and immunization, by showing how we can produce at will such modifications of the physiological resistance or susceptibility of the human body as to make it immune to smallpox.

The importance of these fundamental and splendid discoveries, not only to the public health of the time, but far more to the development of public health science in all the centuries to come, is incalculable. Reduced to their lowest terms, we have in these eighteenth century discoveries the germs of some of the most important divisions of public health science as it is to-day, namely, (1) *epidemiology* (2) *sanitation of the environment*, and (3) *immunization of the human mechanism*, this last the most marvelous phenomenon hitherto discovered in personal hygiene.

Time fails me to do more than name some of the principal steps in the advancement of public health science in the nineteenth century. We have, for example, in 1802, the beginnings of factory hygiene and sanitation; in 1829, the first municipal water filter, one acre in area constructed for the Chelsea Company of London; in 1834, recognition of the important relation of poverty to public health, in the famous report of the Poor Law Commissioners of that year; in 1839, the beginnings of registration and accurate vital statistics; in 1842, an important report on the sanitary condition of the laboring population of England; and in 1843, a similar report on the health of towns; in 1854, for the first time clearly taught, the lesson, even yet not properly taken to heart, that drinking water may be the ready vehicle of a terrible epidemic of cholera. About 1860, striking epidemics of trichinosis first came into public notice, and here, also, belongs the magnificent work of Pasteur, while in 1868, Lister, following in the footsteps of Pasteur, revealed to the world the basis of true cleanliness in asepsis, and in 1876, bacteriology became firmly established as a science by Koch's studies on anthrax. The decade from 1880 to 1890 may be called the golden age of ætiology, for in these years were discovered the hitherto unknown parasitic microbes of typhoid fever, tuberculosis, malaria, Asiatic cholera, diphtheria and tetanus. The last decade of a century which has well been called 'the wonderful,' witnessed the discovery of antitoxins by Behring and the beginnings of serum therapy. The list is long, and I have not mentioned nearly all of the discoveries of capital importance, but because of these and their fruits, I am in the habit of saying to my students that with the single exception of the changes effected by the acceptance of the theory of organic evolution, there has been no modification of human opinion within the nineteenth century more wonderful, or more profoundly affecting the general conduct of human life, than that in our attitude toward the nature, the causation and the prevention of disease—that is to say, toward public health science.

No mere outline like this of the history of public health science can possibly serve to show how, like other applied sciences, this one has not grown as a branch grows from a tree, namely, from a large stem or stock of knowledge, tapering out into thin air, and with its latest growth its least and weakest. That common simile in which the various divisions of science are represented as branches of the tree of knowledge, is a grotesque survival of a time when neither trees nor science were understood. No simile is perfect or even approximately correct, but one better than the tree and its branches for the origin and relationships of any inductive science is that of a river, rising from various and often obscure sources, growing in size and importance as it proceeds both from the springs within its own bed and by the entrance and contributions of tributary streams, and finally pouring its substance into the mighty ocean of accumulated human knowledge.

Up to the time of the establishment of the registration of vital statistics in England, in 1839, the stream of public health science, although full of promise, was only a slender thread, but when the results of registration were fully enlisted in its service it visibly widened and deepened. Epidemiology, as has been said, had the honor of giving birth to the science in 1767, and it added to its offspring a rich endowment when, in 1854, Dr. John Snow proved that the water of the Broad Street well in London has caused an epidemic, in which more than six hundred persons died of Asiatic cholera. The stream of public health science was still further enlarged and quickened by the revelation in and after the sixties of the simple causes of numerous epidemics of trichinosis and of typhoid fever, the latter sometimes through milk. There was an extraordinary popular awakening in England to the importance of sanitation and public health measures in the middle of the nineteenth century, but we look for some time in vain for any marked inosculation between public health science and other seciences, such as physics, chemistry, microscopy, bacteriology, climatology, engineering or education. We have, to be sure, minor contributions from the microscopists, such, for example, as that from Dr. Hassall, who, in 1850, made a careful microscopical examination of the water supply of London and showed the presence in the public drinking water of muscle fibers, intestinal parasites and other materials, plainly derived from sewage; but it was not until Pettenkofer and his disciples, in Germany, and Angus Smith and others, in England, began their splendid chemical investigation that the tributary stream of *sanitary chemistry* enlarged materially that of public health science. In saying this I do not forget that my late friend and colleague, William Ripley Nichols, whose solid contributions to sanitary chemistry were among the first in America, and will always remain among the best anywhere, so long ago pointed out that, as early as 1789.

Fourcroy studied the nature of 'litharged' wine, Berthollet (1801) the methods of preserving water for long voyages, Chevreul (1846) various chemical reactions which explain the hygiene of populous cities, and (1856, 1862, 1870) methods of preparing and preserving food; Graham and Hofmann reported upon the use of acetate of lead in sugar refining (1850), upon the London water supply (1851), and upon the adulteration of pale ales with strychnine (1882); Dumas was interested in many sanitary matters and made, among others, reports on the mineral waters of France (1851), on the water supply of Paris (1859), on the treatment of sewage (1867), and on the preservation of food (1870-72); Wurtz was for a number of years president of the *Comité consultatif d'hygiène* and a year before his death was president of the *Société de médecine publique.* His investigations and reports on sanitary subjects are numerous—on the disposal of the waste from distilleries and sugar-refineries, on the colors employed on German toys and in articles of food, on the adulteration of wines, etc.

Other names will occur to us—such as those of Sir Henry Roscoe, Sir Frederick Abel and Dr. Williamson, who served on the Noxious Vapours Commission of 1876; of Frankland, who gave years of service to the Rivers Pollution Commission of 1868 and in connection therewith devised an elaborate system of water analysis; we think also of Schutzenberger devising a method for the determination of oxygen dissolved in water (not, to be sure, simply for sanitary purposes), Mallet studying the various methods of water analysis, Remsen studying the organic matter in the air, and Leeds the practical effect of charging with oxygen (or rather with air) water used for purposes of domestic supply. I dwell intentionally upon the service of sanitary chemistry to public health science previous to the rise of bacteriology, because I believe that, dazzled as we have been and still are by the blazing achievements of bacteriology, beginning, let us say, with the discovery of the microbe of tuberculosis by Koch in 1882, students of public health science have been too much inclined to underrate the past services and present relative importance of sanitary chemistry. I know of few more important contributions to public health science, ever since 1882, than the chemical work of the State Board of Health of Massachusetts under the able direction of my friend, Professor, afterwards President, Drown (the successor of Nichols) and his associates and successors; or that of another friend, the late Professor Palmer, of the University of Illinois, whose chemical studies of the rivers of Illinois will long remain a monument to a life full of promise and too soon cut short, or that of still another friend, Professor Kinnicutt, who fortunately is still engaged in fruitful work.

I have perhaps said enough, though it would be difficult to say too much, of the magnificent contributions to public health science of Pettenkofer and his disciples in sanitary chemistry: but the work of these investigators in *sanitary physics* and especially the physics of the soil, of the atmosphere, of the walls of buildings, and of heating and ventilation, in their relations to the public health are quite as important, and perhaps to-day even more neglected. In view of the increased facilities for transportation and the growing habit of travelling, together with the tendency to outdoor life, which seem to be characteristic to-day of all civilized nations, the next twenty-five years will probably see a return to the patient and exact studies of *the environment*, such as the chemists and physicists began, and have in some measure continued, since the middle of the nineteenth century. These studies will be directed largely to further knowledge and control of the environment, but they will not end there, for *personal hygiene*, owing to recent advances in physiology, is to-day one of the most inviting fields for work and education, and I hardly need to point out to a company of experts that the proper care and right use of the individual human mechanism reacts favorably and fundamentally upon the public health no less truly or effectively than an improved condition of the environment or of the public health tends to promote the welfare and long life of the individual.

The sphere of hygiene may be divided, as it often is, into the two hemispheres, public hygiene and personal hygiene, or it may be cut into one portion dealing chiefly with the human mechanism and its operation (*personal hygiene*), and another portion dealing chiefly with the environment of that mechanism (*sanitation*). The time has gone by when any one person can safely undertake to deal with the whole sphere of hygiene. The physiologist and the physician must in the future leave to the architect and the sanitary engineer such subjects as housing, heating and ventilation, water supply and sewerage, precisely as the sanitary engineer has never presumed to deal with foods and feeding, vaccines and antitoxins, exercise, sleep and rest. The former subjects deal chiefly with the control of the environment, the latter subjects chiefly with the control of the individual, and sanitation and hygiene must henceforward be regarded as separate hemispheres of the science of health.

The *science of architecture*, if under this head we include the principles of building construction, and the heating and ventilation of buildings, has done and is doing much of interest and importance to the student of public health science. For my own part, I am continually more and more impressed with the fact that the air supply, especially for the modern civilized and too often sedentary form of mankind, is in the long run quite as important as the water supply, the milk supply or any other supply. Surely, we can not be too careful of the purity of a substance which we take into our bodies oftener, and in larger volume, than any other, and which has come, rightly no doubt, and as the result of long and painful experience, to be known as the very breath of life. I am well aware that human beings may survive and seemingly thrive, even for long periods, in bad air, but I am certain that for the best work, the highest efficiency, the greatest happiness and the largest life, as well as for perfect health, the very best atmosphere is none too good. Hence I believe that the permeability of the walls of houses and other buildings, and the heating and ventilation of dwellings, school houses, churches, halls and other public places, require, and in the near future will receive, a much larger share of our attention than they have to-day.

In an age characterized by urban life and possessing sky-scrapers, tenement houses and other huge bee-hives, in which human beings aggregating vast numbers spend a large part of their lives, buildings require for their proper construction, lighting, heating, air supply, water supply, gas supply and drainage, the scientific services not only of architects, but of engineers, and such public buildings form one small section of the aid which modern *engineering science* is now everywhere rendering to public health science. The present has rightly been called an 'age of engineering,' and to no other science, excepting only medicine itself, is public health science to-day more indebted than to engineering science. I have referred above to the construction of the first municipal filter attached to a public water supply as that of the Chelsea Company of London, constructed in 1829. How different is it to-day! Not only nearly the whole of London, but also Berlin and Hamburg, and a thousand lesser cities all over the civilized world, are now protected more or less perfectly from epidemics of typhoid fever, Asiatic cholera and other water-borne diseases by vast municipal filters, ingenious and scientific in design and costly in construction, the work of skilful and faithful engineers, and monuments, more precious, if less enduring, than brass, to the contributions of engineering science to public health science. Innumerable storage reservoirs and vast distribution systems for supplies of pure water also bear witness to the enormous debt which public health science owes to engineering science, as do proper street construction and, still more, those splendid systems of sewerage with which so many modern cities are equipped, and which not only serve to remove quickly the dangerous liquid waste of human and animal life, but also keep low and wholesome the level of the ground water reducing dampness and promoting dryness of the environment, and thereby strengthening that physiological resistance by means of which the human mechanism fights against the attacks of infectious disease. Nor do the services of engineering science end here, for the fluid content of the sewers must always be safely disposed of, and sewage purification is to-day a problem of engineering science no less important or difficult than that of water purification. These same processes of the purification of water and sewage are matters of so much moment in public health science that in almost every country experiment stations are now maintained at public and private expense for the purpose of working out the most practical and most scientific methods of purification.

In no respect have the services of engineering science to public health science been more conspicuous than in the application and the further study of the principles involved in the processes of water purification. It has lately been shown, for example, that the introduction of pure water supplies has in many cases so conspicuously lowered the general death rate as to make it impossible to escape the conclusions (1) that the germs of a greater number of infectious diseases than was formerly supposed are capable of prolonged life in and ready conveyance by, public water supplies, and (2), as a promising possibility, that as the result of the greater purity of the water supply the physiological resistance of the consumers of pure water supplies is enhanced, in some manner as yet unknown ; the net result being that the general death rate is lowered to such an extent as to lead to a rapid increase of population in communities previously stationary or multiplying far less rapidly. In the case of the city of Lawrence, Mass., for example, I have recently had the privilege of examining the results of studies by the distinguished hydraulic and sanitary engineer, Mr. Hiram F. Mills, which show that since the introduction of a municipal filter, which purifies the water of the Merrimac River supplying water to the citizens of Lawrence, while the population has increased nearly seventy per cent., the total number of deaths remains about the same as it was ten years ago. Mr. Mills concludes from the results of his studies—and I see no escape from his conclusions—that the introduction of the municipal filter has not only saved the lives of thousand of citizens, but has also caused the population to increase to a point much beyond any which it would have reached had the city continued to use, unpurified, the sewage-polluted water of the Merrimac River. A demonstration of this sort shows how easily the diminishing increase of population under a lower birth rate may sometimes be counteracted without resort to that fish-like spawning which seems to be the only remedy of those who are terrified by 'race suicide,' so called. Moreover, it is hardly necessary to point out that such a diminishing death rate means as far more rapidly diminishing morbidity rate—in other words, it means a heightened working efficiency of the population as a whole, and it must not be forgotten that for most of the results obtained in the scientific purification of water supplies we are indebted to the science of engineering.

On the other hand, we must observe that engineering science, so far as water purification is concerned, is as yet only in its infancy and by no means thus far altogether satisfactory. In the United States, for example, in the last two or three years a number of epidemics of typhoid fever have resulted from the *defective operation or construction* of municipal filters, and while much has been done, it is clear that much still remains to do. In this connection it should be said that public health science in the United States suffers constantly and severely from an unsatisfactory condition of the science and art of administration or government in many American cities. Public health works are too often neglected, delayed, mismanaged, or built at extravagant cost, to the sanitary and economic damage of the people as a whole, and the tendency is far too common to place the care and operation of costly devices or systems in incompetent hands. I can not here dwell, as long as I should like to do, upon the mutual relations of public health sciences and the sciences of legislation and administration. Speaking of my own country alone, I must confess that we are still very deficient in the applications of these sciences. We have not even a national board of health, although we have, fortunately, in the Public Health and Marine Hospital Service a strong substitute for one. The peculiarities of our democratic and republican government have hitherto made it impossible for the people of the United States to secure either from federal authorities or from more local sources that measure of paternal sanitary and hygienic protection which they ought to have, and it is the duty of every American worker in this field to bend his energies toward a better organization of the public health service in every direction, municipal and state as well as national. The appointment in 1886 of a distinguished hydraulic engineer to membership on the State Board of Health in Massachusetts marked an epoch, so far as America is concerned, in both sanitary legislation and administration. This appointment was a formal recognition on the part of the public of the necessity of a larger proportion of engineering science in matters relating to the public health, and the results have justified the new procedure. It is now, fortunately becoming less rare in America to secure the services of engineers upon such boards and there can be no question that participation of the expert laity with medical men is likely to be extended, probably far beyond our present ideas.

In a notable discourse before the International Medical Congress at the Centennial Exposition held at Philadelphia in 1876, Dr. Henry P. Bowditch, of Boston, one of the pioneers of hygiene and sanitation in America, divided the century then closing, as to its relation to public health science, into three periods, the first, from 1776 to 1832, a period of reliance upon authority and upon drugs; the second, from 1832 to 1869, a period of true scientific observation; the third, from 1869 onwards, an epoch in which the medical profession is aided by the laity and state hygiene is inaugurated. Dr. Bowditch has much to say of the desirability of a wider cooperation of the laity in state hygiene and remarks: 'In all that tends to the promotion of state hygiene hereafter the laity will naturally and cordially cooperate with the [medical] profession.' The history of public health science shows Dr. Bowditch's prediction to have been well grounded. The names of John Howard and Captain Cook in the eighteenth century,' and of Edwin Chadwick, John Simon and Louis Pasteur (not to mention a host of lesser workers) in the nineteenth century, show conclusively that public health science has been, even from the start, by no means confined to medical men. We may go further and say that even when forwarded by medical men these have seldom been busy practitioners. Sir George Baker and Jenner were, it is true, of this class, but not Pettenkofer or Koch or Ross or Billings or Reed.*

Reflections of this sort naturally lead to a consideration of the reciprocal relations of public health science of education. I do not need to dwell upon the beneficial effects of public health science and the science upon the hygiene and sanitations of school children or school houses. These benefits have long been emphasized by sanitarians and sanitary reformers, and are sufficiently obvious. The reverse of the picture, however, is by no means so well understood. Unless one is familiar with the facts, it is difficult to conceive how little impression the splendid progress which the last fifty years have witnessed in public health science has as yet made upon the curriculum of education. From top to bottom and from bottom to top the schools, whether primary, grammar, high, normal, technical, medical or any other class, are recreant, inasmuch as they neglect almost wholly any adequate training of their pupils in the principles of public health science, which are confessedly of such profound importance to mankind. There is, to be sure, just now a popular wave of enthusiasm touching the extermination of tuberculosis, but in the United States, at any rate, both schools and universities are singularly negligent of their most elementary duties in this direction. Yet if what I have said before is true, if the laity are to participate from this time forward with medical men in sanitary and hygienic legislation and administration, if engineers and medical men in particular are to serve upon boards of health or in other executive positions connected with public works, then, surely, it is the duty of the science of education to lend its powerful aid and not to fail to save the lives and health of the people as these can be saved to-day, but always to promote that public health and that large measure of consequent happiness which can probably be more easily and quickly accomplished in this way than in any other.

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* "During the course of an epidemic physicians are too busy to make observations which require much time or care, or to make more than brief notes." —J. S. Billings.

As to the function of medical education and engineering education in respect to the dissemination of public health science, I shall say only a word. In spite of the reiteration by medical men of their belief in the importance of hygiene and preventive medicine as a part of the equipment of the medical profession, it is a significant fact that in America even the best medical schools devote very little time to any adequate instruction in these subjects. It may be that this is wise, and that the pressing necessities of practical medicine forbid any extended instruction in public health science. I am willing to believe, if I must, that this may be the case ; but if it is, then the community must look for the most part elsewhere than to medical men for adequate investigation, legislation and administration of public health science. Medical men, must, of course, always participate in the work, in connection, particularly with the control of epidemic and in those forms of preventive medicine which have to do with vaccines, serums and other means of modifying the vital resistance of the human body. But as regards the care and control of the environment medical knowledge is not indispensable, and the entrance of the engineer and sanitary expert upon the field, as foretold by Dr. Bowditch nearly twenty years ago, is to-day a conspicuous, and probably a wholesome, fact. As to the attitude of engineering education toward public health science there can be no question. If what I have said before is true, then engineers are bound in the future to take constantly a larger and more important part in public health work, and must be informed, and if possible trained, accordingly. Moreover, as regards both medicine and engineering, the problem is by no means insoluble, for a very short course of instruction rightly given would easily inculcate the necessary fundamental principles, while electives or post-graduate work might enable those few whose tastes led them in this direction to investigate and specialize and more thoroughly prepare themselves for public service.

I can not treat, nor do I need to treat, as thoroughly as I would be glad to do, the mutual relations existing between medical science, especially the science of medical bacteriology, and public health science. These are already sufficiently obvious and well known. From time immemorial medical men have served, often devotedly and sometimes heroically, in the cause of public health science. I take it, however, that since we have in this congress and in our own department a section of preventive medicine, I may pass over without comment this part of my subject.

As regards sanitary bacteriology, however, the relations existing between this and public health science are so fundamental, so extensive and so important, not only on the medical, but also on the engineering side, that although we have also in this congress under the department of biology, as is entirely proper, a section of bacteriology, I may linger at this point for one moment. The bacteria and other microscopic forms of plant and animal life, all of which are conveniently included under the term microbes, have so lately begun to be understood and appreciated that we must still emphasize their extreme importance. The discoveries of the botanists and zoologists and revelations of the microscopists in this domain are comparable, in their importance to public health science, with nothing less than the revelations of the telescope to astronomy. Astronomy had, indeed, existed long before the invention of the telescope, and public health science as we have shown above, had its beginnings nearly a century before any considerable progress had been made in micro-biology. But it is not too much to say that the developments in microbiology since Pasteur began his work have not only revolutionized our ideas of the nature of the infectious diseases, but have also placed in our hands the key of their complete control.

Concerning the relations of *physiology* to public health science, I must not fail to speak. Here is a field absolutely ripe for the harvest, but one in which the harvesters are as yet very few. I have lately had occasion to examine somewhat carefully the present condition of our knowledge of personal hygiene—which is nothing more (and should be nothing less) than the applications of physiological science to the conduct of human life —with the result that I have been greatly impressed with its vast possibilities and promise. Man is a gregarious animal, and mankind is to-day crowding into cities as perhaps never before. Moreover, the industrial and commercial age in which we live is characterized to an extraordinary degree by the sedentary life. Yet the sedentary life is almost unavoidably an abnormal life, or at least it is a life very different from that lived by most of our ancestors. In the sedentary life the maintenance of a high degree of physiological resistance apparently becomes difficult, and if the vital resistance of the community in general is lowered then the public health is directly and unfavorably affected, so that considerations of personal hygiene have a direct bearing upon the science of public health.

There are, to be sure, interesting and suggestive symptoms of a wholesome reaction, in America, at any rate, against the evils of the sedentary life. Parks and open spaces are being liberally provided; public and private gymnasiums are rapidly coming into being; public playgrounds are thrown open in many of our cities, free of expense to the laboring, but, nevertheless, often sedentary, population; vacations are more than ever the fashion; sports and games are everywhere receiving increasing attention; while public baths and other devices for the promotion of personal hygiene are more and more coming into being. All this is as it should be, but all is as yet only a beginning. Here, again, the science of education is sadly at fault and in the direction of educational reform as regards personal hygiene lies immense opportunity for a contribution to public health science.

The science of *statistics*, which has done great service in public health science in the past, is likely to do much more in the future. Without accurate statistics of population, mortality and the causes of sickness and death, the science of epidemiology is impotent, and the efficiency or inefficiency of public health measures can not be determined. And yet in ignorant hands statistics may be worse than useless. It is a matter for congratulation to Americans that we now have in Washington a census bureau permanently established and under expert supervision, but until the various states and cities of the United States follow this excellent example of their Federal Government, one of the most important aids to public health science will continue to be wanting, as is unfortunately too often the case to-day not only in America, but in many other parts of the civilized world.—*Science.* June 16, 1905.

Acknowledgments.

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ওলাউঠা চিকিৎসা।

ওলাউঠা বা কলেরা অতি সাংঘাতিক পীড়া, হোমিওপ্যাথিক মতের চিকিৎসাই ইহার একমাত্র উপায় তাহা বোধ হয় সাধারণকে আর বুঝাইতে হইবে না, তবে প্রথম হইতে রীতিমত ভাবে চিকিৎসার আবশ্যক। সেই জন্য প্রত্যেক গৃহস্থের একখানি কলেরা পুস্তক ও কিছু হোমিওপ্যাথিক ঔষধ রাখা কর্ত্তব্য। রোগীর শয্যাপার্শ্বে বসিয়া বড় বড় রাশি রাশি পুস্তক হাতড়ান অপেক্ষা ইহা হইতে অতি সহজে, অতি শীঘ্র, রোগের লক্ষণ দেখিয়া ঔষধ নির্ব্বাচন করা শ্রেয়ঃ, ইহার ভাষা অতি সরল, মূল্য—।৴৹ আনা মাত্র।

সাধারণ মূল্য—মাদার টিং প্রতি ড্রাম ।৵৹, ২ ড্রাম ‖৵৹, ১ম হইতে ১২ ক্রম পর্য্যন্ত ।৹, ২ ড্রাম ।৵৹, ৩০ ক্রম ।৵৹, ২ ড্রাম ‖৹, এককালীন ৫৲ টাকার ঔষধ লইলে শতকরা ১২‖৹ হিঃ কমিশন পাইবেন। পত্র লিখিলে সচিত্র ক্যাটালগ পাইবেন।

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CLINICAL ASPECT OF PLAGUE.*

By Dr. Hem Chandra Ray Chaudhuri, L.M.S.

GENTLEMEN,

The subject of our discourse to-day is the Clinical Aspect of Plague. When the plague mortality in India is gradually increasing to an alarming extent, it would be idle to be contented with the bacteriological investigation alone. The total death in India from this disease in 1901 was 273,679. In 1902 the number rose to 577,427, in 1903 the mortality was 851,263, and in 1904 the figure came to 1,022,299. It is almost sure that 1905 will exceed the enumeration of the previous years. Sir Arthur Godley, the all-powerful permanent Under-Secretary for India assures us that almost every thing is being done. The omnipotent prophylactic fluid comes to the rescue. The high authorities may be satisfied of their arduous work, but we on the contrary observe that nothing comes to our relief. Disinfection from 1896 in Bombay to the present day has proved failure. The injection of the prophylactic serum is being actively carried on in the Panjab, without any effect. On the contrary there were a few cases of tetanus on account of the injection of the bad serum. The Government of Bengal has pronounced its verdict against the disinfection by Bichloride of Mercury, the most powerful of their disinfectants. Sir Arthur Godley has disclosed the terrible death rate in the Panjab in the months of March, April and May 1905, as over 250,000. Surely this can not be looked down. It should be said that this high rate of mortality has been attained by exclusively observing the bacteriological side of the question. The clinical aspect in the treatment of the disease remains mostly neglected. The practitioners of the New school of Medicine, on the other hand are obliged to follow a course which allies the pathological and the pathogenetic aspect of the disease. Bactériology as a branch of pathological investigation is not neglected. We do not allow bacteriology to override pathology but make it a subservient annotator of the diseased structure. In that view of the disease, it is our duty to deal with the clinical aspect:

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* The paper was read at a meeting of the Hahnemann Society, Calcutta, held on the 27th August, 1905.

The Report of the Indian Plague Commission divides the disease into three principal forms. The Bubonic, Septicaemic and Pneumonic. It does not take into consideration the Diarrhoeaic character separately. The Bubonic is described as follows: "Plague in its most typical variety, takes the form of bubonic plague. In this form of plague, the bacteria are carried by the lymph stream into the lymphatic glands, in particular into the lymphatic glands of the groin, and the axilla—less frequently into those of the neck. The bacteria multiply there and excite a considerable amount of swelling and inflammation, which manifest themselves in the form of a bubo. The development of this bubo is often associated with severe pain. Following closely upon more rarely preceding—the development of the bubo, constitutional symptoms set in. They consist in malaise, headache and fever, frequently accompanied by collapse and vomiting. When the bacteria have grown through the meshes of the lymphatic filter, they are carried on by the lymph stream into the blood. The disease then becomes septicaemic."

The Septicaemic type is defined thus: "Distinguishable clinically, though from the point of view of the pathologist, not sharply marked off from the secondary plague septicaemias just described, are the cases of plague commonly spoken of as septicaemic in contradistinction to bubonic cases. These are the cases where, owing to the more rapid passage of bacteria through the lymphatic filter, and possibly to a greater production of bacterial poisons, the constitutional symptoms precede and overshadow the local symptoms, the disease being in most cases rapidly fatal."

The Pneumonic form as distinct from the two, does not require any description. It is said as follows: "In a third form of plague, first bacteriologically established by Captain Childe, I.M.S., plague bacilli invade the lungs and give rise to pneumonia, death occurring in most cases within a few days after the patient has been attacked. Owing to the absence of buboes, the pneumonic form is often classed, along with the septicaemic form, in the category of non-bubonic plague."

A fourth variety has been added. It is called the Pestis minor or Pestis ambulans, an abortive type. It is thus explained: "It can not be doubted that in these abortive bubonic cases the bacteria are, as in the case of ordinary bubonic plague, carried to the lymphatic glands but they are held back there, the disease stopping short of the septicaemic stage. In correspondence with this the constitutional symptoms are very slight." Clinically considered, we have four varieties of plague. The minor and the bubonic forms are confined within the lymphatic channels. The septicaemic may be said to be the general dissemination. The pneumonic attacks the lungs. As far as we know, the pneumonic is the most fatal of them all.

It is interesting to observe that no morphological changes of the plague bacilli have been noticed with regard to the varieties of diseases. There are changes of structure of the bacilli but their importance remains uninvestigated. The plague bacillus "in its typical form is a small ovoid micro-organism, varying between 1 and 2 micro-millimetres in length and between 0·4 and 0·8 micro-millimetres in breadth." The plague bacillus can readily be stained by basic aniline dyes. It does not retain the stain when treated by Gram's process, unless when weakened (50 per cent.) spirit is employed in lieu of absolute alcohol in the decolourisation process. As distinct from this cocco-bacillus there are some involution forms like yeast cells or amaebae." Angular involution forms are also met with. Filamentous changes are, however, most commonly found. These are three or four times as long as the undegenerated filaments seen in the ordinary cultures and often terminate in swollen club-shaped extremities. The staining properties of all these various involution forms are extremely variable. In some cases they stain deeply with basic aniline dyes; in other cases staining takes place in an extremely irregular manner. We are at present concerned with the clinical varieties of plague. These clinical characters do not apparently change with the difference in the structural appearances of the plague bacilli. When so many different symptoms are observed as to impress us with the delicate nature of the tissues attacked, it remains inexplicable why the morphological appearance of plague bacilli is not in consonance with the pathological changes of the disease. A few vital organs are attacked in some varieties to the exclusion of others in other forms. Whatever we may say about our knowledge of plague, there is a dark side of the lantern which gives us no light.

Clinically we distinguish the gravity of the plague cases in another way. There is little to be gained by the difference into varieties, if the case has delirium. Whether bubonic, septicaemic or pneumonic, it is all the same. The grave symptom of delirium must be abated as soon as possible; otherwise there is little hope to save the life of the patient. There the serpent poisons help us the most. Aconite, Belladonna, Hyoscyamus, Stramonium, Antim. tart., generally fail. Crotalus, Lachesis, Naja, and Boa vipera (Russel's viper) come to the rescue.

Our next consideration is to reduce the high temperature. Aconite ferox, Aconite lycoctonum, and Aconite napellus are the remedies first administered. Then comes the role of Belladonna, Mercurius vivus, Baptisia, Gelsemium, Pyrogen, Veratrum album, and Veratrum viride, to be used according to their individual peculiarities. They serve the purpose of almost all cases of high temperature of any variety of plague.

After all, the dangerous symptoms of plague which have tendency to extinct life are those connected with the brain. Delirium and high temperature lead to the same result. Continued high temperature for two or three days may invite delirium. It should be said that delirium may also take place even when the temperature is below 103° F. from unascribed causes. The virulence of the microbic action takes a form not by the agitation of the thermic centre but by expending its energy to other vital centres of the brain. The ventricles and their surrounding space are disturbed. The last pressure on the medulla oblongata creates the final scene by the production of the respiratory difficulty.

The great bug bear which is generally referred to plague is the failure of the heart's action. The old school treatment is reported to be full of such cases. With judicious homœopathic treatment I am convinced that such cases do not occur. The failure of heart generally follows after the administration of stimulants to sustain its action. The administration of heart-stimulants by the old school creates its danger of failure. Whether it is the effect of the super-abundant precautionary measure or the sequence of reactionary dulness that generally supervenes after the high action, it is difficult to conjecture. So far it can be said that the dangerous unworkable condition of the heart comes on after those medicines of the orthodox system which are supposed to support its working capacity. We generally avoid it on the principle of general action as distinguished from organopathy. The characteristic symptoms are our leading guide. The selection of remedies by simi-

The difficulty of avoiding the difference was only possible by referring to Jahr's Symptomen Codex. It is stated there, "*Gross* has employed it for intolerable pains in the region of the lactiferous tubes during and between the acts of nursing." It is curious that such oversight has been made to produce the conflicting statements.

Phellandrium produces another kind of peculiar pain. It is, as if blood vessels in the whole body were in vibrating motion. Observation is wanting whether this symptom will be of use in any case of inflammation.

Phosphoricum acidum has power to cure boils and unhealthy ulcers. It is not said whether it is capable of arresting unhealthy inflammations. The medicine can cure diabetes and unhealthy ulcers due to that cause. Inflammations from that source are also amenable to its influence. Phosphoric acid has the following symptoms: sore pains in every injured spot; *bruised sensation in all joints in morning, in arms and lower limbs* and in nape; *in hips, arms, thighs and nape, as from growing pains,* worse on ascending steps and on beginning to walk, with tearing sticking in these parts. *Scraping in periosteum of all bones*; smarting in wounds, even in wounds of bones; affections of any kind in inner navel, lower part of chest, buttocks, thighs, external side; squeezing or contracting pain; cramplike pressive pains; painfulness in general in bones or periosteum; after contusions; swelling of gland.

It will be seen that the action of phosphoric acid extends to muscles, bones and joints. Curative effects are in plenty with regard to caries and necrosis of bones, the medicine being administered for scraping in bones with a knife. Old wounds when become re-inflamed on account of bad health have scope for its use. In fact it is a medicine for all kinds of inflammations and ulcers due to depressed vital action. Cold and chronic inflammations and unhealthy ulcers of that kind can well be treated with the remedy. For the same reasons it can arrest and cure gangrene which is produced on account of low state of health, caused by ill nourishing diet and chronic debilitating diseases.

Phosphorus has a character of its own mostly unlike its nearest chemical ally Phosphoric acid. Phosphorus is more hæmorrhagic than the other. Phosphoric acid has cured a case of land scurvy with hæmorrhagic spots. Phosphorus on the other hand has arrested bleeding of small wounds with profuse hæmorrhage. It has the following symptoms: Inflammation of glands in general, glandular diseases especially after contusion; the pains of the medicine are continuous or irregular; burning pain in limbs; sprains; easy dislocations; darting pain; inflammation and stinging pain of inner parts; small wounds bleed much; blood fluid non-coagulable; general aggravation from sweets, from wetting hands and feet, in cold damp weather, in hot weather.

Phosphorus has not been administered in ordinary inflammation. In bleeding of small wounds it has proved successful. The haemorrhagic diathesis of the disease comes near to Crotalus, the latter being of more severe nature than the former.

Physostigma venenosum or Calabar bean is found in Western Africa. "It is called Ordeal-bean because the natives administer it to persons suspected of crime. We are told that, in a public trial, the accused is compelled to eat up a few beans in their natural state, while others are being pounded to pulp, well mixed with water and then given him by the mouth and in form of an enema. If the poison is rejected by the mouth and bowels, the accused criminal is cleared; fatal consequences are absolute proof of guilt."

We take from Hempel and Arndt the above information. It is not stated how death ensues in poisoned cases. Pain in the lumbar and sacral regions is one of its prominent symptoms. It has also pain in sacral region, as if strained by lifting, weight worse on motion; contractive pain of anterior surface of coccyx; as if dysentery coming on.

It may be useful in sacral pains caused by straining. Any kind of inflammation on the lumbar and sacral regions seems to be under its influence. Whether lumbar abscesses can be benefited by its use when other medicines have failed, remains to be observed. In cases of paralysis with spinal irritation, and having inflammation of the sacral region, it is worth a trial.

Phytolacca produces pains in tendinous parts, (periosteum and tendons). It has pains which are pressing, shooting and sore; great exhaustion and prostration; sore and stiff; bones and glands inflamed and swollen; boils and abscesses, especially near ulcers, on back; whitlow; shooting like needles in finger-joints; *general soreness in muscles* (Rhus t.); *with stiffness* (Petr., Rhus.) throbbing through the whole system; pains always come with its full force at once and so continued till it ceased, then drowsiness and stupor and even sleep; all neuralgias, worse on motion and pressure, they are pressing and shooting, sometimes sore, drawing and aching; shooting inward and upward; *aggravation generally at night and in wet weather; shooting in sacrum, extending down outside of hips to feet; heavy pain in lumbar and sacral regions* worse on motion; *sticking in various parts, always from without inward and near surface.*

Allen's clinical note is, "Pains fly from one part to another, the patient is pale and puffy. General stiffness of the extremities, with tearing pains." Clarke writes: "There are few remedies which have a wider range in the cure of tumours and indurations, particularly of the female breast." As for the pain, he adds, "The pains of *Phyt.* come and go suddenly; move about, radiate from a centre, or change place. Pain in sore nipples of nursing women radiates all over the body when the child is put to breast. When pains in intestines disappear, pain in extremities comes on. Pain leaves heart and appears in right arm (this association is unusual, and therefore important). Pains in head and chest go from before backward. Pains run down spine from nape; from sacrum down outer aspect of thighs and toes. The *outer* aspects of the limbs are chiefly affected."

Apart from its use in curing mammary abscesses and sore nipples, it may be said that it is a medicine for muscular periosteal and osteal inflammations. Hughes writes thus: "Some of the facts mentioned in Dr. Hale's first account of Phytolacca indicated that it was a periosteal medicine, like Mezereum. A recent case of over-dosing with it, which is given at length in the "Symptomatology" of his fourth edition, shows its power of causing periostitis of the forehead and face, together with blotches, sore and painful, of the whole surface of body, afterwards invading the mouth and the throat."

It is an unfortunate circumstance that Phytolacca has been used mostly in syphilitic sores and inflammations. It has been administered in mammary abscesses and sore nipples. A few cases of diphtheretic inflammation have been cured by this medicine. But in general inflammation, perhaps, it has never been used. The proper sphere of its action is subacute inflammation of muscles, periosteum and bone where chronic character is marked. The shooting pains and their shifting nature are indications of the affection of perepheral nerves.

REVIEW.

Triennial Report on the working of the Charitable Dispensaries under the Government of Bengal and the Calcutta Medical Institutions, for the years 1902, 1903, *and* 1904.

The report at the outset contains the following statement:

"In view of the extensive prevalence of tuberculosis and malaria in Bengal, it was considered desirable to make an attempt to diffuse amongst the people a knowledge of the manner in which these diseases spread, and the means of avoiding them. With this object short courses of lectures on these subjects were, with the co-operation of the Director of Public Instruction, instituted in all the colleges and in many of the more advanced schools in the province. The good effects produced by an extension of knowledge of this kind amongst the people are already very apparent in Europe in the case of tuberculosis, and it is hoped that similar results will in process of time be obtained in this country."

We can not agree with the Inspector-General of Civil Hospitals in Bengal that the spread of tuberculosis and malaria can be prevented to any appreciable degree by lectures to students. Overburdened as the students are by their large number of heavy books, it is almost futile to make additional impression of the dangers of tuberculosis and malaria. They already know fully well what their devastation means. The last takes away from the rural population so large a number that they are impressed with its terrible mortality. Living among the rural people of Bengal they suffer in some way or other. The practical prevention of the two diseases cannot be enforced by lectures but by examples inaugurated by Government. It is not enough, that words will suppress their attacks. Almost every one of the adult population of Bengal knows that boiling of water before consumption does not deter the invasion of malaria. On the other hand poverty has reduced many to such distressing position that they cannot adopt any slightly expensive method to frustrate the attack of the disease. Though malaria is known to be derived from the consumption of the malarial animalcules in drinking water and food, yet few ways are known which will give an immunity. The mosquito curtain is not enough for the purpose. Those who use the curtains are not free from its invasion as those who do not adopt their service. When the outbreak of the epidemic takes place, it is all the same with Ronald Ross or our Madhab cultivator. The introduction of water supply for drinking purpose in certain urban areas has no doubt produced good result. The system of water supply can only be extended to large urban towns. The small towns and villages are destined to remain ever the same. We do not see that any particular method has been applied by Government to free the rural inhabitants from the attack. Words will not smooth down our difficulties. If advices are published in Bengali by the authorities to disseminate sanitary education, that will no doubt be one step in advance. The other should be to open classes for sanitary inspectors who after passing their examination can be employed for the purpose by the municipalities of Bengal and sanitary Panchayats to reduce the mortality of malaria and other diseases.

As for tuberculosis, Koch's theory of dissemination does not find favour from clinical experience. The more we observe the greater conviction takes place, that in this country tuberculosis generally spreads from milk of tuberculous cows in persons who had been debilitated by other diseases as diabetes, syphilis, fever, etc. The sanitary inspection of cows is a necessary element for the prevention of the disease. The bad arrangements of keeping and feeding cows in Calcutta and other thickly populated towns are dangers which should be avoided as soon as possible. Tuberculosis is almost unknown in rural places. It is mostly a disease of populated towns. The proper method by which we can avoid the disease is to use as little as possible of cows' milk supplied by milk-men of the town. A good hygienic condition of cows can only support its use.

The proposal of a Convalescent Home for Europeans comes to the front. The Surgeon-Superintendent of the Presidency General Hospital proposed the scheme and it is thus supported by the Inspector-General of Civil Hospitals: "During the past year the necessity for a Convalescent Home in connection with this Hospital has been urged by the Surgeon-Superintendent, and the proposal has been considered by Government. At present two free beds in the Eden Sanitarium, Darjeeling, are at the disposal of the hospital for this purpose, but this arrangement does not fully meet its requirements; in the first place, the number of beds is insufficient, and again the climate of Darjeeling is unsuitable for many of the cases for which accommodation in a comparitively cool and sanitary locality is needed. The difficulty has been to find a suitable place in which to locate a sanitarium of this kind. By a process of exclusion, Puri has been selected as being more suitable than any other; it is within easy reach of Calcutta by rail, has a moderately cool and healthy climate and is freely exposed to sea breeze during the greater part of the year. On the other hand, it has the disadvantage of being a largely frequented pilgrim resort which has hitherto been a notorious focus for cholera, whilst malaria is very prevalent in a severe form in the neighbourhood. These are serious drawbacks, but the site on which it is proposed to build the Convalescent Home is fairly well isolated from the native town; it has a good water supply independent of that of the town, and the European residents enjoy good health for the most part. The climate is suitable for patients recovering from hepatic and intestinal troubles as well as those suffering from the cachexia caused by malaria, so that failing a more suitable place within a short distance of Calcutta, it may be granted that Puri will not be an unsuitable site for the proposed Home, although it is by no means an ideal one for the purpose. The necessity for a Convalescent Home of this sort is undoubted, and it is hoped that the Surgeon-Superintendent's proposal will soon be carried into effect."

The proposal is under consideration of the Government of Bengal. It seems that there is a chance of the proposal being accepted. The whole affair proves the utter unsuitability of the Convalescent Home at Darjiling, as most of the diseases are aggravated than cured. We remember the time when so much fuss was made of Darjiling as a health resort. Our idea was that it is destined to prove a failure for the rigorousness of cold provokes many latent diseases. For old persons in general, the climate is unsuitable. So far for Darjiling. As for Puri we may again say that the selection is not judicious with dangerous outbreaks of cholera and malaria around the town. The assertion would be difficult to prove that the future convalescent home will not be attacked by cholera during the time of the pilgrimage when lacs of persons come into the city. Farther, the location of a large number of Europeans in a place so much frequented by a vast multitude of pilgrims is liable to create a friction between them. We think the better place will be the coast of Balasore, devoid of most of the dangers.

Thirty-seventh Annual Report of the Sanitary Commissioner of Bengal for the year 1904.

Though the statistics supplied by the different provinces with regard to births and deaths are unsatisfactory yet it may be said that they impart a nebulous idea of the subjects. Depending on that notion, we take into consideration the figures published by the Sanitary Commissioner of Bengal. The rate of birth ascribed to the United Provinces was 53.19 per mille, during the year under review. Next to it came the Central Provinces having 46.67. Bengal had 42·59, and the Punjab 41·5 and Madras 30·7. Bombay did not come into consideration of the Sanitary Commissioner. Its birth rate must have been lower than all the provinces, for continuous ravages of famine and plague. It should be said that according to the last census report of 1901, the increase of population in India in the last decade was only 2 per cent., whereas Great Britain had so much as 14.

The highest death rate came from the Punjab which was generally considered the healthiest of all the provinces. It was 49·1 per mille. Bombay gave 41·39, the United Provinces 34·70 and Bengal 32·45. The lowest was in Burma 22·36. The high mortality in the Punjab was ascribed to plague which is responsible for 40 per cent. of the total deaths in that province. The unhealthiness of Bengal is proverbial. The difference was manifest, comparing Calcutta with other towns of Bengal. Calcutta recorded the ratio of 32·22 deaths per thousand population during 1904 from all causes, whereas the average ratio of the other towns was 35·58, showing the difference of 3·36. Cholera gave the highest mortality at Malda, which was 4·39 per mille. Almost no district of Bengal was without that scourge. It had 2·39 per mille in 1904 and 2·23 in 1903. Orissa 1·42 in 1904 and 5·26 in 1903. Bihar 1·32 in 1904 and 3·48 in 1903. Chota Nagpur ·21 and 1·04 in the respective years. It should be noticed that in 1903 there was pan-endemic attack of cholera in Bengal.

Plague had its highest harvest in 1904 in comparison with the two preceding years. The worst mortality came from fever. Bengal in 1904 had 24·04 per mille against 23·45 in 1903. Bihar showed the death rate of 22·18 in 1904, whereas it was 22·87 in 1903. Chota Nagpur recorded 16·08 and 16·24 in the respective years and Orissa gave 11·92 and 13·52. From all causes, taking an average of the previous five years, the rate of mortality had been calculated so high as 32·51 per thousand population. It is an open truth that no steps were taken to prevent the outbreak of malarious fevers. Government and the wealthy people are unmindful of the distressing calamity. Silted up tanks and river beds breed a seething mass of microbes which have proved so disastrous to the life of the people. The condition of the rural population is such that it is impossible for them to take any active measure. The dumb millions die by hundreds and thousands. Those who can afford to remove to Calcutta or other urban centres feel partially safe. The average life has dwindled to forty years, or less, beyond which the inhabitants of rural places do not expect to live. Costly political schemes have been floated by the Government, but no consideration is taken of the sanitary measures which can save a lac and a half of lives in Bengal alone every year. The Partition affair is a gigantic catastrophe in consideration of the awful waste. Had one quarter of the sum been expended to the urgent sanitary reforms, Bengal would have been saved from the dreadful calamity of annual devastation.

Annual Report on the Search for Hindi Manuscripts for the year 1903. *By Syamsundar Das, B.A.*

It is his fourth annual report. Babu Syamsundar Das' ripe scholarship in Hindi language entitles him to the valuable work. The publication consists of notices of 127 books, which were written from the fourteenth to the nineteenth centuries.

One medical book has been noticed. *Prana Sukha* or Comfort of Life is a Vaidyaka compendium written by a Mahammadan author in the reign of Shahjahan in A. D. 1654. The book is incomplete and contains only three chapters, *viz.*, *Ritu Pariksha* or Examination of Seasons, *Karma Lakshana* or Causation and *Jwara Pariksha* or Examination of Fevers. The noticeable feature is that a book on Hindu medicine was written by a Mahammadan and in the Hindi language. This marks the affinity of the two races, Hindu and Musalman, during the reign of Shahjahan.

The Problem of Existence, its Mystery, Struggle, and Comfort, in the light of Aryan Wisdom. By Manmath Ch. Mallik of the Middle Temple, Barrister-at-law. London T. Fisher Unwin. Paternoster Square, 1904. *The published price is* 10*s.* 6*d.*

The author, Mr. Mallik, in this book of 319 pages has sketched out a difficult task which will be our duty to examine. He wants to adapt the Eastern transcendental thoughts to the current ideas of the Western materialism. The Eastern thoughts are represented by the sayings of the ancient sages of India, and the Western materialism is based on his ideas as he saw in the occidental world. An alliance is necessary for India and England. It is a theme not in accordance with the narrow mindedness of Kipling. An answer has been given by the late Rev. J. Murray Mitchell in his book "The Great Religions of India."

> "East is East, and West is West; and
> yet the twain shall meet,
> And Eastern men join Western men
> in fellowship complete."

The study of the book at once makes it clear that the author views the modern materialism with his old ideas of metaphysics, which has since been displaced by physiological psychology.

From his stand-point of antiquated metaphysics he surveys the new and the old countries for an alliance. It should be said that there is a great accordance of a few aphorisms of the Sankhya philosophy with some of the notions of modern science which has not touched the thoughts of Mr. Mallik. Dr. Rajendra Lala Mittra's preface to his edition of Patanjal Sutra comparing the theories of Patanjal with Schopenhauer's World of Will and Idea could have been studied to establish a connecting link between the East and West. Attempts have been made by German Sanskritists with that view. Nothing appears from the book under review that assimilation of ideas of the two centres of education dates back from a remote period. Mr. Mallik's idea is a crude metaphysical survey, whereas the others were based on definite principles. The preface of the book lays down the ethics of self-control, which is stated to be coercion. The author has accepted that all coercions benefit the world. He studies mental and moral coercion. The physical subjugation should follow them. According to him the material prosperity is self-conceit. The preface ends with the following ethics :

"A right solution of the problem of life is possible only for the mind which subdues all passions and prejudices and devotes sufficient time and attention to the attainment of the sublime object." The difficult problem naturally ensues is, whether self-abnegation is consistent with material prosperity ? The author emnunciates a proposition which has proved disastrous to India. The self-control leading to self-abnegation is a renunciation worthy of an important being. With the teachings of Hindu philosophy for *Purushakar* or the Assertion of Rights by Man, the opposite enunciation proves futile and without sufficient basis. The author evidently follows Bhagavat Gita and other later writings which contain many inconsistencies similar to his own. In the introduction he says :

"Life makes itself manifest through a combination of mind and matter." Mind, according to him is inseparable from matter. Perhaps, he will object to call mind as a kind of matter, though he writes, "mind when separated from matter can not be." On the other hand, modern psychology tells us that brain is the organ of mind. If mind is not matter or a force of matter, then it must have an immaterial existence. The confusion of ideas between mind and soul becomes inevitable.

In chapter viii, with regard to Military Life, he quotes thus: "In the world these two are sure of penetrating into the highest heaven; the ascetic who has merged his being in the eternal, and the warrior who sacrifices life on the field of battle." May we enquire how the theory of self-control be consistent with both. Asceticism is self-control and militarism is its direct opposite condition. They both lead to heaven. The one is self-denial and the other is the extreme form of assertion of right. Military glory may follow greed as well as self-preservation. Self-preservation is personal. It is not consistent with protection of property. The mystery of the argument on behalf of the two conditions remains ill-understood when we preach renunciation and self-glorification at the same time. After all there is joy for both. The way to heaven is carved out in aerial steps. We admit our inability to comprehend the situation. May it be possible that the author has divined the intricacies of militarism by the light of his *yoga* philosophy. After all we are tempted to say,

> Hail, Delusion! Offspring of the man first born,
> Or of the eternal, co-eternal gloom,
> May they comprehend thee well.

EDITOR'S NOTES.

Overlying an Infant Punished as Manslaughter.

The Lancet of 29th July has the following :

"At the recent Chester assizes, on July 19th, Mr. Justice Phillimore sentenced a woman, aged 31 years, to 21 months' imprisonment with hard labour. It was given in evidence that 11 days after her confinement, at Birkenhead, she insisted on taking her child, who was thoroughly healthy, to bed with her when she was in a drunken state; she slept heavily and suffocated the infant. The jury found her guilty of the manslaughter of her babe by an act of gross and culpable neglect. Many coroners have tried to secure such a verdict in similar cases of alcoholic infanticide but they find it very difficult sufficiently to persuade the inquest juries sitting upon such unnatural deaths and even where these juries have agreed to a verdict of manslaughter when the case comes before the sessions or the assizes the grand jury commonly finds "No true bill," for public opinion does not yet consider the massacre of the innocents concerned as a criminal offence capable of proof."

We know of instances in this country, where infants were suffocated on account of heavy covering on them during winter, from the carelessness of mothers. Alcoholic infanticide is unknown in this country and the gross carelessness wants social regulation to suppress it.

The Chemical Mechanism of Gastric Secretion.

The following is from the British Medical Journal of July 22 :

"In a communication recently read before the Royal Society, Dr. J. S. Edkins describes the observations he has made in support of the view that in the process of absorption of digested food in the stomach a substance is separated from the cells of the mucous membrane, and passing into the blood or lymph, at a later period stimulates the secretory cells of the stomach to functional activity. He has found that if an extract in 5 per cent. dextrin of the fundus mucous membrane be injected into the jugular vein there is no evidence of secretion of gastric juice, but if the extract be made with pyloric mucous membrane there is a small quantity of secretion. Control experiments with dextrin alone gave no secretion. When extracts were made with dextrose or maltose, fundus mucous membrane gave no secretion, but after injection of the pyloric extract the secretion was marked; the control cases injected with dextrose or maltose alone gave no secretion. In the case of extracts made with commercial peptone it was found that no secretion occurred with fundus mucous membrane, but there was a marked secretion with the pyloric extract; the peptone alone gave a slight reaction. When extracts were made by boiling the mucous membrane in the different media the effect was just the same. The active principle, therefore, for which Dr. Edkins suggests the name "gastrin" is not destroyed by boiling. In connexion with these observations, Dr. Edkins calls attention to the fact that such absorption as occurs in the stomach apparently takes place in the pyloric end."

Disgestion in the stomach is still liable to vast methodical enquiry. It is an ill-understood fact how undigested foods remain in the stomach for many hours to be vomited afterwards, when foods taken after it have been digested. It seems that the whole quantity of food is not ejected into the smaller intestines, the undigested portion remains behind. The mechanism is only possible if the undigested foods are retained by an artificial contraction created in the stomach at the œsophagial end to be vomited afterwards.

Malaria in The Roman Campagna.

The British Medical Journal of July 1 writes:

"The report of the Italian Red Cross Society on its work in the prevention of malaria in the Roman Campagna during last year state that the results have been most successful. The Society has seven stations in the Campagna, the population of which may be divided into those who live there all the year round, and those who come down from the mountains to the plains only for a certain season of the year. A certain proportion of the inhabitants of both these categories have acquired immunity. To those who are susceptible the Society distributes quinine in tablets, at first to the number of five or six a day, and after a week at the rate of one or two daily, according to age. "Immune" persons do not receive the large preliminary dose given to the susceptible, but they are supplied with one or two tablets a day throughout the bad season. In this way the amount of malaria in the Campagna has been notably diminished. Of 12,061 persons who took quinine in the prescribed doses last year only 800, or from 6 to 7 per cent. were attacked. The measures for the protection of the inhabitants against the mosquito were not neglected. The windows of all railway stations, custom offices, and public buildings in the vicinity of Rome are covered with close wire netting, and towards sundown the customs officials wear wire masks. Although these measures have been proved very successful it is difficult to induce the peasants to adopt them. A striking proof of their fatal carelessness in this respect is given by the Rome correspondent of the *Morning Post,* to whom we are indebted for an abstract of the Red Cross Society's report. It may be remembered that Drs. Sambon and Low, of the London School of Tropical Medicine, some years ago spent the three most dangerous months of the year in the most malarious part of the whole Campagna—the lake outside Castel Fusano, near Ostia, without taking any precautions beyond the mechanical exclusion of mosquitos, and escaped scatheless from the deadly breath of the "evil air." Our contemporary's correspondent found on a recent visit that the colony of people from Ravenna, who used to cultivate the marshy lands near the Castle of Ostia, had all gone, leaving an eloquent inscription and many corpses behind them in the adjacent cemetry. The ignorance and apathy of the people are ever the greatest difficulties against which sanitary reformers have to contend."

The same tale of woe will come from any innovation which is not least costly and consistent with the habits of the people of the country. The artificial immunity by medicine is not wanted. Sanitary measures which will destroy the malarial microbes are in need. The success in the Campagna is of a trivial character, in the absence of any large sanitary organisation.

Hypnotised Witnesses.

The following is from the Lancet, July 22:

"The medico-legal relations involved by the practice of hypnotism have several times been discussed in the courts of the United States of America. Quite recently in the case The State *v.* Exum it has been decided that the statement by a witness on cross-examination that she had been thrice hypnotised by the prisoner is admissible as affecting the credibility of her evidence. It was not alleged in this case that the witness was actually in the hypnotic state, for then she would have been held quite incompetent to offer testimony. What counsel sought to prove was that she was then and there the subject of a post-hypnotic suggestion. It is admitted that proof of such a mental condition must be very difficult; the judge, whose function it is to decide the competency of a witness, would have to consider many pertinent facts. Once, however, the state of post-hypnotic suggestion is established there can be little doubt that a witness so obsessed should be ruled unable to testify on behalf of the party responsible for that condition. It must be remembered that possible actions of the victims of *suggestions a longue echeance* are still hotly debated in the French schools of hypnotism: at the Salpetriere they hold that the educated moral sense is not annulled by a criminal suggestion; at Nancy they have several practical if reprehensible illustrations that when hypnotised the mind does not revolt at a suggestion which leads practically to the performance of a misdemeanour or a crime."

Hypnotism has discovered a new state of the mental sphere which can be acted on during hypnotic sleep. The latent function, of the brain produces wonderful actions which were known to the oriental world. The practice of hypnotism in the occidental sphere has given new scientific facts. The relation of hypnotism to law and medicine divulges a condition of brain-function which contributes additional light to sociology. Whether society is in danger from hypnotics is a fact which remains undecided. Whether the mental condition of a post-hypnotic person is such that he has no control on his own actions is a most important issue which should be carefully studied. Whatever may be the opinion of the Paris school, we are disposed to believe that a post-hyponotic person is an unreliable element in society. Hypnotism has its good and bad side of the picture.

The Epidemic of Ice-Cream Poisoning at Birmingham.

The Lancet of 29th July says :

"Dr. John Robertson, the medical officer of health of Birmingham, presented to the members of the Birmingham city council his report on the recent epidemic of ice-cream poisoning. In all there were 52 cases of illness. One patient was an adult 46 years of age, one 20, one 18, one 17, and the others under 14. The interval between the purchasing of the ice-cream and the onset of the illness varied from half an hour to eight and a half hours and all the patients complained of pain in the stomach and vomiting. Diarrhœa and collapse were symptoms in the majority of the cases. The chemical analysis disclosed none of the ordinary poisons. The bacteriological examination showed that it contained a poison and that in certain cases it was capable of causing inflammation and death in guinea-pigs. The poisonous property of the ice-cream was due to the presence of a bacillus or bacilli belonging to the colon group. The bacteriological analysis was made by Professor R. F. C. Leith. It appears from the report that about 250 people purchased the ice-cream. Dr. Robertson states that the ice-cream was made amid very insanitary surroundings and in close proximity to three water-closets which were in a very filthy state. He conjectures that excremental organisms had been blown into one of the buckets of ice-cream while it was in a warm condition and that rapid multiplication of the organisms took place. The condition of the premises in which this ice-cream was manufactured was not, Dr. Robertson concludes, worse than that of many other premises where ice-cream and other foods were stored or manufactured in Birmingham, so that there was a possibility of similar outbreaks occurring on other occasions. It is to be hoped that some prompt measures will be taken by the health authorities of Birmingham to prevent further outbreaks and that other local authorities will keep a strict watch upon the manufacturers of this dangerous article."

The epidemic at Birmingham gives an additional light to the notable Ice-cream poisoning cases at Bhowanipur. The same facts are observed in both the cities. The ice-creams were manufactured in objectionable places, which created the disaster.

CLINICAL RECORD.

Indian.

A CASE OF FRONTAL HEADACHE.

By Dr. Hem Chandra Ray Chaudhuri, L.M.S.

Babu——————————, aged 28, residing in Sankaritola East Lane, was attacked with frontal headache for the last few days. It originated from cold, as he was bathing every day, and exposing himself during his sleep in a veranda, on account of the excessive heat which was prevailing at the time. The headache was mostly located in the frontal sinus, and commenced at about 9 A.M., since the time when he was placed under my treatment. It used to come before at about 11 A.M., and seemed to be of the advancing type. The pain would leave him at about 3 or 4 P.M. I saw him for the first time on the 13th June, 1905, and prescribed Bell. 6 dec.

14th June.—Bell. acted as a marvel. It instantly relieved his headache after the first dose. Bell. 6 dec.

15th June. The action of Bell. was not so well appreciated. Aco. 1 dec.

16th June. Aconite nap. 1 dec. He had no attack.

17th. He remained well since the 15th and had no return of the headache.

Aco. 1 dec. was continued, for a few days and he remained well.

Remarks.

The case of frontal headache had two marked peculiarities, having the advancing type, and originated from cold. The headache was rather of a tensive character and sometimes bursting nature would accompany it. He could not bear light during the attack. His face gradually assumed a bloated and suffused appearance ; and they were mostly observed just after the attack. In the morning before the attack, nothing peculiar could be seen with regard to his face. It should be remarked that *Aconite* serves the double purpose of preventing the headache of such a nature, whether it originates from heat or cold.

Foreign.

CASES BY H. A. CAMERON, M.D., WATERBURY, CONN.

CASE I. *Clavus.* Mrs. J. S., a woman 41 years of age, has had for three days pain as from a large square nail driven into her head near the vertex and to the left of the sagittal suture.

Has also a soreness extending from the left eye up to the painful part.

The pain is > from hot applications and from vomiting and is always < on awaking.

Sore bruised feeling in the left eye as if it had been struck.

Shooting pains extending from the left eye into the head radiating upward.

Nausea and vomiting with the pain.

The patient smothers in a warm room.

She gave a history of an eruption in the popliteal region which she had cured with acetate of copper solution three weeks before. I associated the two conditions and so "thinned down" the list of remedies applicable to the case to Hepar, Lach., Nat. m., Sep. and Thuja. A study of these remedies in the materia medica decided in favor of Sepia, of which one dose of the cm. was given. Next day she reported that the pain was gone and she had no return in the ten months since that date.

CASE II. *Trifacial Neuralgia.* A. K. B. has lost sleep from neuralgic pains in left temple and adjacent scalp, and wants a remedy to give him a night's rest. He says the pain is > while he blows his nose and from pressure on the part, and is < during the night and upon lying on the painful side. He could give no other data, and Lachesis which has the left-sidedness and > from pressure, was given in the 30th potency, 4 doses 2 hours apart. I heard no more from him until I met him, about six weeks later, when he informed me that the remedy did the work promptly.

CASE III. *Trifacial Neuralgia.* Miss B. presented a similar unsatisfactory picture of neuralgia of a branch of the 5th nerve. The pain in her case involved the right eye and right cheek. The pain of a steady, dull, aching character, began in the afternoon and got worse all night, was < from chewing and > from warmth. The right-sidedness and the afternoon < were the only features to guide, and Lycopodium Im. was given and was followed by relief. The 45m., however, had to be given later for a partial return.

Case IV. *Neurasthenia.* K. W., a man about 50 years of age, complained of weakness of the legs. Says that he had the same feeling all last summer, and got better only when the winter came on. He notices that he is always< in bright sunshiny weather. Has dizziness by spells. Always feels< in the afternoon. Is stiff on first getting up from a chair, but this goes off by continued motion. The peculiar< in clear fine weather decided for Caust., but Lyc. was, of course, kept in reserve p. r. n. He gave a glowing report a week later and felt fine for a month, when he came in to complain of feeling generally bad after supper till about 8 P.M. Lyc. Im. put him in good condition and opened a sebaceous cyst in his dorsal region that had been quiescent for years.

Case V. *Traumatic Neurasthenia.* Miss S. E. B. complains of pain in the left upper arm, which she has had off and on for several years and almost steadily for the last five months. She cannot raise the arm without getting a pain, and lately the pain has extended to the fourth and fifth fingers. Pain wakes her up in the early morning. Arm is stiff in the morning on getting up and also after rest. She cannot extend the forearm fully because of a contraction of the muscles of the upper arm and those muscles are atrophied. On being questioned as to the effect of the weather changes she says the arm is much< during the bright sunny weather and> during rainy weather. Six years ago she tripped and fell on the buttocks jarring the spine and head and since that time has had pain in whole spine, especially in cervical region. Caust. 45m., one dose was also exhibited in this case, and the patient in three weeks time reported freedom from pain and ability to use the arm. There has been no return of these symptoms.

Case VI. *Infantile Convulsions.* A little Italian baby, 2 months old, was seized with convulsions late in the evening and as I had left the office an allopathic physician was called in. He reported to me next morning that he had given a rectal injection of sweet oil, a hypodermic of morphine, a rectal injection of chloral, and also some sedative medicine. I saw the child about 10 o'clock in the morning and found the following symptoms: The trouble began with straining as if for stool; child held its breath and face became red.

No movement of the bowels, but convulsions set in. Child cried a great deal yesterday before the convulsions and was quieted only by being carried about the room. Has had about twelve convulsions between 9 o'clock last night and 10 this morning (in spite of the remedies given by the allopath). While I was talking to the mother a convulsion came on and was frightful to behold. The eyes were drawn up, a cyanosed condition appeared around the mouth and eyes, the respiration was suspended for a long time, so that one would think the child had died; but sudden quick inspirations followed, with gurgling in the throat at the end of each. Child was constantly putting out the tongue, as if licking the lips. There was divergent strabismus.

I put Cina 200 in water and directed a teaspoonful to be given at once and a dose after each convulsion. The first dose was the only one given, as the child began to improve immediately and had no more convulsions.—*Medical Advance*, June 1905.

CASES OF CARDIAC ASTHMA.

By W. Mc. George, M. D.

Case I. I. C., aged 74, suffered in 1875 from attacks of cardiac asthma, diagnosed by me at the time as angina pectoris. The attacks would come suddenly any time, but oftener at 4 and 5 o'clock in the morning. He received Nux., Lyc., Bry., Ars., Cact. with temporary benefit, but whether he was relieved by the medicines or whether the paroxysm ceased spontaneously am unable to say. I tried to believe that my medicines brought relief but I was not satisfied. I never had so bad a case, and I felt that my patient was not improving as much as he wished and as I hoped for.

I went home and studied up my case and searched my materia medica for a remedy. My eye caught this foot note in Hales' New Remedies. "I think this remedy, (Sumbul) will prove useful in cardiac asthma." I sent to Boericke & Tafel and got some of the tincture and next time I was called there I took Sumbul with me. Putting a few drops in a tumbler partly full of water, I gave him a spoonful every five minutes, and sat down and watched the results. The relief came quicker than before and I went home the old farmer told me to leave some of that medicine with him so he could have it right away. The relief was certain, and helped him for three months when it gradually wore out.

After his death a post mortem showed calcification of the coronary arteries. So calcified had they become that we could not force the scalpel all the way through the artery. This was a case of heredity without doubt, as his mother died of heart disease; his father fell over dead. My patient's brother ran to catch the train and died from heart disease the same day. A son of my patient died six months after his father, with pericarditis.

Case II. On April 28, 1895, I was called hurriedly by Dr. G—— to see an elderly man who was gasping for breath. He was out doors so he could get his wind; his pulse was feeble, he was cold all over, had clammy sweat on his forehead, and was apparently slipping away. One drop of Sumbul in a spoonful of water was immediately exhibited, and the dose repeated every five minutes until he breathed freer, then every half hour; next day he seemed tolerably comfortable.

I saw him again on May 12, when the condition present in April was observed. His pulse was very feeble and he was cold as marble. Sumbul again relieved him, but this time the effect was not so lasting. He continued much the same way until May 15 when he died. This coldness of the body was continual. On May 15, I told the family he would die, and was asked to inform the patient of my prognosis. I did so, but he looked me in the face, took me by the hand and said: "Doctor, you are mistaken, I am not going to die." In less than three hours death had conquered. The relief of the spasmodic condition from the Sumbul in this case was very great. No post mortem was held.

Case III. May 11, 1895. Mrs. M. applied to me for help in my clinic in the dispensary. She had endocarditis and nephritis. From that time till July of this year (1904) she came to the dispensary, some times every week. Some times not for six months. During this time she had had four children, the last one, a seven months (dead) child was born on April 28 of this year.

She came to the dispensary again July 20 and was in a pitiable condition. There was mitral regurgitation, nephritis, œdema of the feet and arterio-sclerosis; the radial pulse in each hand being as crooked as a ram's horn. She was much emaciated and told me she had never been well since the child birth in April. Apoc. relieved her and she came up every week to the clinic. One Saturday she got wet going home and she came but once afterward. I attended her at her home, and for a month she improved steadily under Lachesis, and thought she might get around again, and at her request to save expenses, I ceased visiting her, her daughter reporting every week at my office.

October 20 I saw her again and found the œdema in the limbs much increased. Temporary relief was obtained by tapping her feet, and her respiration improved, heart's action was stronger, she rested easier, partook of food better, and she asked me if I did not think she would get well. When the Lachesis failed Mercurius helped her for a few days, but Digitalis did not help and deranged her stomach. November 1st she moved to another house, had a chill and gradually declined until November 13, when she passed away during a storm. Cause of death, arterio-sclerosis, complicated with endocarditis.

Case IV. In 1900, an old man who was very thin came to me at the clinic for relief from shortness of breath. His radial arteries presented the beaded appearance found in arterio-sclerosis and the heart's action was feeble. His principle trouble was difficult breathing, coming in paroxysms. Sumbul relieved him promptly, and he was able to do light work for a few weeks, but he caught cold one day and his attacks of dyspnea were worse afterward. When he sat perfectly still he had no pain, no dyspnea, but the attacks were brought on by the least exertion. Bryonia 30 helped him, the Sumbul having lost its power. He died in a few days sitting in his chair. No post mortem was allowed, although the man was embalmed. The undertaker cut me a piece of his radial artery, and the cavity was so small inside the calcareous coat that I could scarcely insert the point of a fine needle in the canal.

Case V. In 1902, at Audubon, I attended a lady who suffered terribly with paroxysms of asthma. She was about 48 years old, had had a large family of children, and two or three miscarriages. Up to within a week before I was called, she had been able to look after her house. Sumbul did not relieve her. Lachesis did for a time, but Ipecac. lasted longer than any other remedy. Arsenicum, Bryonia and Sulphur would relieve for a time but the effect was evanescent. Dr. Quint saw her in consultation with me and advised Atropine during the paroxysm and Kali bichromicum afterward. The effect was only partially successful. Lachesis would relieve but not cure. She died August, 1902. In this vial is a portion of the right mammary artery which I had observed as being so hard during her life. Although she died from insufficient aeration, resulting from the sclerosed condition of the arteries, she kept in good physical condition to the end.

Occasionally in my clinics here I see severe cases of arterio-sclerosis. The patients don't know what ails them, all they come for is relief for the shortness of breath. Sumbul relieves them and oftentimes they come back and say the medicine makes them comfortable ; will I please give them the same medicine again. But the relief wears out in a few weeks, and then the end is not far distant.—*Medical Advance*, June 1905.

Gleanings from Contemporary Literature.

ALCOHOL AS A THERAPEUTIC AGENT.

Delivered at the Seventy-ninth Annual Meeting of the Lancashire and Cheshire Branch of the British Medical Association, held in Liverpool, June 28th, 1905.

By James Barr, M.D., F.R.C.P., F.R.S. Edin.,

President of the Liverpool Medical Institution, and of the Lancashire and Cheshire Branch of the British Medical Association ;
Physician, Liverpool Royal Infirmary ; Lecturer on Clinical Medicine, Liverpool University.

Gentlemen,—The use of alcohol in all its aspects is a thread-worn subject which is difficult to present in any new light, but, as among medical men, there is no settled consensus of opinion as to the value of the drug or uniformity of action in prescribing it in disease, it seems to me that I might be allowed, I hope with some profit, to present my views on the question. During the last fifty years teetotalers have been consistently preaching against the evil effects of alcohol, but the consumption has gone on steadily increasing so that it is now double the amount that it was at the beginning of the half century. However, it would seem that the alcoholic tide is now receding. The average capacity of the individual for alcohol has been overstepped, and as a taxable commodity it can bear no further burthen ; the Chancellor of the Exchequer must therefore look out for other sources of revenue whereby teetotalers will have to bear their fair share of imperial taxation.

Not being a teetotaler myself I have no personal prejudices against the use of alcohol, but if during the last quarter of a century I have prescribed almost none in the treatment of disease, it is because I have found very litte reason for its use, and it seemed to me that many patients got on better without it. As I very seldom order alcohol in any form it might be thought that I have no experience in its use, but I may at once assure my audience that I have seen it very freely prescribed, and I have had innumerable opportunities of studying its effects both in health and disease. Whatever differences of opinion there may be as to its social use, it might be reasonably expected that a scientific body like the medical profession would long ere this have arrived at some consensus of opinion as to its value in disease, but here we find just as great differences as we do among the laity ; some think that for certain diseases it is one of the most valuable drugs which we possess, while many other equally competent observers are of opinion that whatever slight merit it may possess, its place in therapeutics could be very well supplied by many other drugs. A late friend of mine when asked to take part in a discussion on the treatment of pneumonia, replied that there was only one treatment for pneumonia and that was brandy, and the best you can get, whereas there are others like myself who think that the high mortality of that disease is in part due to the administration of alcohol. A friend recently told me that he gave a bottle of brandy daily to a very bad case of pneumonia, the patient made a good recovery, and only for the brandy my friend is confident that he would have died. Such reasoning as this is not uncommon with therapeutists as to the value of other drugs as well as alcohol. If ever the use of drugs is to become a part of scientific medicine we must know their physiological action, and we must clear the ground of crude empiricism and *post hoc, propter hoc* reasoning. There is much less alcohol prescribed nowadays than formerly, but I regret to think that this, in my opinion, is the result of fashion rather than the effects of any deep conviction as to the limited usefulness of the drug. Alcohol is now largely reserved for emergencies, and when a case becomes desperate it is freely prescribed, but why a patient should be made drunk or his dry tongue still further parched with brandy because he is going to die I fail to see, and personally I have never seen the tenure of life thus prolonged. Sir Lauder Brunton, when speaking of "Alcohol in Post-febrile Collapse," says:

> The rule for the administration of alcohol is a very simple one. It is to sit by the side of your patient for a while and watch him after the administration of a dose of alcohol, and if you find that the alcohol brings back the various functions nearer to the normal then it is doing good; if the functions of the organs diverge further from the normal after the administration of alcohol then it is doing harm. I use this means of expressing the action of alcohol advisedly, because if we take the different functions we find that a special rule will not include them. Thus the pulse may become quicker or slower after the action of alcohol, and yet the question as to whether good or harm has been done depends upon the condition of the pulse beforehand; that is to say, if the pulse has been abnormally slow, and is quickened by alcohol, it is doing good, for it has brought the pulse nearer to the normal. On the other hand, if the pulse has been abnormally quick, and is slowed by the alcohol, it has again been brought nearer to the normal, and hence the alcohol in this case also has done good. But in the one case the alcohol has done good by quickening the pulse, in the other case by slowing it: so that, in order to convince ourselves of the beneficial action of alcohol, we must have regard to its relative, and not to its absolute effect upon the pulse; in other words, we must not say that simple quickening or slowing of the pulse by alcohol is good unless we can show under what conditions the pulse was beating before the alcohol was given. The same rule is applicable to the tongue. If a tongue which was previously dry becomes moist after alcohol, then it has done good; in the same way, if the skin were too dry and hot before we gave alcohol, and the alcohol brings it back more to the normal, makes it cooler and moister, then the alcohol is doing good. If, on the contrary, the alcohol makes the skin drier and hotter in fever, then it is doing harm. But if the skin were cold and bedewed with sweat in collapse, and alcohol makes it warmer and drier, it is again doing good.
>
> It is sometimes exceedingly difficult to estimate the quantity of alcohol to be used. It varies, and I do not know that I can give you any guide except the rule that I have just mentioned. The fact that a man has been accustomed to drink large quantities of alcohol when in health makes it often necessary to give him in disease a quantity so large that it would certainly be injurious to an ordinary patient. You must take into consideration the habits of the patient, as well as his disease, in judging of the amount of alcohol to be given.

Sir Lauder Brunton's description of the effects of alcohol runs on parallel lines with the popular belief that when you are cold it warms you, and when you are warm it cools you. There is no other drug in the *Pharmacopoeia* that has such an accommodating action to circumstances. It would seem as if in any particular case we could never predicate as to whether alcohol is going to do good or harm. Surely some indications could be laid down for its use so that we should know beforehand what effect it is going to produce. If some one would do for alcohol what Professor Sherrington has done for chloroform we should soon arrive at some definite views on dosage, and the various effects which would follow the use of the drug. We do not want performed on human beings an indefinite number of experiments about the results of which no two observers would perhaps agree.

I wish this address to be as far as possible the result of personal observation, and I shall approach the subject from the physiological standpoint as the only firm foundation on which the use of alcohol can be built. In the *Pharmacopœia* the doses of the powerful drugs are laid down within certain well-defined limits, but with alcohol it would seem that you must be continually experimenting not merely as to whether it should be used or not, but also as to the amount you should use. I must at once dissent from the popular idea that its constant use confers any immunity against its toxic effects. With increasing years men are able to stand less and less alcohol, and in advanced age the result of free imbibition are most disastrous. When a man is lying prostrate in bed you cannot test his power of maintaining his equilibrium in the erect posture, but there are many other methods of testing his co-ordinating power, and of observing the other effects of alcohol. In my remarks I shall avoid all reference to the more definite toxic action of alcohol, and confine myself to the effects of usual medicinal doses, say four to ten ounces of brandy containing 40 per cent. of absolute alcohol in twenty-four hours.

PHARMACOLOGY.

Circulatory System.

If one or two ounces of brandy diluted with four times its bulk of water be slowly swallowed, the pulse is slightly quickened, just as Lauder Brunton has shown that this is the effect of sipping any liquid, but if the person be at rest and all other sources of excitement avoided this effect is very evanescent. From its irritating action on the nerves of the stomach it may cause a temporary contraction of the splanchnic vessels and a slight rise in the general blood pressure. Once, however, absorption takes place it has a paretic effect on the vasomotor system and the arterial blood pressure falls. This effect is general but it perhaps more especially affects the nerves and vessels of the skin and muscles. There is then a rush of blood to the surface through the paretic vessels; the nerves and vessels lose their power of regulating the temperature, and consequently there is a large cooling surface which allows of a rapid lowering of the temperature, if the other conditions be favourable. This physiological effect would explain the value which German physicians attach to its use in conjunction with cold baths.

Dr. George Oliver, in his Oliver-Sharpey Lectures, has shown that brandy, wines, and beer for a short time after administration, raise the blood-pressure and increase the lymph flow, but his observations were made on the mean or diastolic pressure. In my experience, with the dilatation of the arterioles and small arteries, there is an invariable fall in the systolic pressure, but with the increased bulk of fluid in circulation there may be an increase of the diastolic pressure in the large relaxed arteries; the venous pressure is increased, and with it there is also an increase in the diastolic pressure within the heart; but once the surplus fluid is disposed of there is then also a fall in the diastolic pressure within the arteries, and perhaps also in the veins. A glass of whisky well diluted has raised my own venous pressure as much as 15 to 20 mm. of mercury. With the loss of arterial tone—especially if it be carried to a great degree by the use of large doses of alcohol—there is no proper conservation of the energy of the systolic output; the energy of the heart is wasted in pumping blood into relaxed vessels, and its nutrition through the coronary vessels is not properly maintained owing to the want of sufficient diastolic tension within the aorta. The increased diastolic pressure within the ventricles, especially where large quantities of weak alcoholic fluid—such as beer—are drunk, leads to dilatation of the heart, a condition very common in Germany and not unknown in this country. Leonard Hill says:

> Besides chloroform, alcohol may be mentioned as another drug which, while it renders the systolic output incomplete, increases the diastolic pressure and the dilatation of the heart. If the heart be confined in the pericardium, and these drugs be pushed to excess, the heart ceases to have room for diastole when the distension reaches a certain point; cutting the pericardium relieves the heart for a time, but final cessation in diastole takes place eventually.

The coronary arteries are not supplied with vasomotor nerves, and the circulation through these vessels is maintained by the aortic pressure, but, although there is a fall, the arterial pressure never under ordinary circumstances falls so low as to interfere with the nutrition of the heart. However, alcohol is a protoplasmic poison and so interferes with the irritability and contraction of the cardiac muscle; the contractile power is lessened, and with the increased diastolic pressure and consequent enlargement of the heart the effect of each systolic contraction is further diminished.

The pulmonary vessels have, if any, a very scanty vasomotor nerve supply, hence the pulmonary circulation is carried on under purely mechanical conditions. The increased venous engorgement and diastolic pressure within the heart lead to overloading of the pulmonary circuit. Hence pulmonary and bronchial catarrh are common consequents of chronic alcoholism; this may be aggravated by the excretion of part of the alcohol imbibed through the pulmonic mucous membrane.

As the cerebral vessels are not supplied, or at least not to any extent, with vasomotor nerves, whatever action alcohol may have on the arteries and arterioles of the brain can only be directly on the muscular fibre, and as that is very sparse in the smaller vessels, the direct effect of alcohol on the cerebral vessels must be very slight. As we have previously seen there is a fall in the general blood-pressure, and consequently less sustained arterial tension within the brain; how, then, can we explain that feeling of fulness in the head which is the usual sequence of the use of alcohol? It would seem to me that as the brain is enclosed in a box, which must always, under the atmospheric pressure, contain about the same quantity of fluid, and as in alcoholism there is a fall in arterial and a rise in venous pressure, the feeling of fulness in the head must be due to venous engorgement.

Alcohol has a paralytic effect on the vessels of the splanchnic area which are well supplied with vasomotor nerves; there is thus a lowering of the general arterial pressure, and venous engorgement of the whole of the splanchnic area. Moreover, in chronic alcoholism the dilatation of the right side of the heart an incompetence of the tricuspid valve lead to chronic congestion of the liver and fatty degeneration of the centres of the portal lobules. We thus often get a large congested liver in association with fibrosis of the outside of the lobules; a combination of nutmeg liver with cirrhosis.

We might summarize the effects of repeated medicinal doses of alcohol on the circulation as follows: It causes dilatation of the arterioles and of all the arteries well supplied with muscular fibres owing to its paretic effects on the vasomotor nervous system, and its direct action as a protoplasmic poison on the muscular fibre. It has a similar though less marked action on the cardiac muscle. From these causes the systolic blood pressure is lowered, the systolic output from the heart is diminished, and the cardiac energy is wasted in pumping blood into relaxed vessels; the large bounding pulse with comparatively short systolic period, which gives a deceptive appearance of vigour and force in the circulation, is due to the large wave in the dilated vessels. The venous pressure and the diastolic pressure within the heart are at least temporarily increased, and where large quantities of beer are drunk the heart may become permanently dilated; with the increase in the capacity of the ventricles the effective contraction of the cardiac muscle is correspondingly diminished. The long-continued use of the drug, even in moderate quantities, leads to fatty degeneration of the cardiac muscle, and chronic mesoarteritis with permanent loss in the elasticity of the arteries. The numerous other deleterious effects would carry us beyond the immediate scope of this paper.

Nervous System.

Alcohol has a selective affinity for the nervous system, and its action has been so well expressed by Schmiedeberg that I cannot do better than quote his remarks.

In the mental areas the finer degrees of observation, judgment, and reflection are the first to disappear, while the remaining mental functions remain in a normal condition. This is sufficient to explain the often strange conduct of persons who are under the influence of alcoholic drinks; the soldier acts more boldly because he notices dangers less and reflects over them less: the orator does not allow himself to be influenced by any disturbing side-considerations as to his audience, hence he speaks more freely and spiritedly; self-consciousness is lost to a very great extent, and many are astounded at the ease with which they can express their thoughts; and at the acuteness of their judgment in matters which, when they are perfectly sober, with difficulty reach their minds; and then afterwards they are ashamed at their mistakes. The drunken man imagines he has great muscular powers, and exhausts himself by unusual and useless exhibitions of his strength, without considering that they may do him harm; a sober man, on the other hand, is always anxious to spare his strength.

However difficult it may be to prove a directly stimulant effect on the mental areas through alcohol, still more is this the case with regard to the other functions.

The rise in the frequency of the pulse is not dependent upon the action of alcohol, but is caused by the circumstances under which the alcoholic drinks are usually consumed. It is the result of the energetic behaviour, and, according to the investigation made hitherto, it is not present when the body is quite at rest (Zimmerberg). The turgescence and redness of the face are caused by loss of the tonus of that part of the vascular nervous centre from which the vessels of the skin and of the face receive their nervous supply. The increased flow of blood to the surface of the body, along with the lessening of the heat-sense, causes a feeling of pleasant warmth, where before, through the lowness of the external temperature, there was a disagreeable feeling of coldness. Therefore this effect of alcohol, which is especially valued by the inhabitants of cold countries, and which the laity are most readily inclined to consider as a result of stimulation, is only dependent upon a sort of paralytic condition of the areas concerned.

In fact alcohol is not a stimulant but a sedative, as was long ago pointed out by Sir Samuel Wilks, and it is only as a sedative that in can be profitably used in disease. As Schmiedeberg again says:

No one will expect any special advantage, we imagine, from a stimulation of the sensations and of the mental functions in disease. We aim rather as much as possible at protecting from every form of excitement those areas which are usually in a state of increased sensitiveness, and consequently keep all strong stimuli arising in the outer world as carefully as possible away from the patient. These efforts are assisted by a mild narcosis, which the taking of the wine brings about, even though it be no more than a slight deadening of the hypersensitiveness. Just as rest enlivens and refreshes, so can wine have a like effect by favouring the conditions for rest, although it does not stimulate any function directly.

Alcohol lessens reflex action from the very commencement and assuages pain, hence in highly sensitive conditions of the nervous system it might be used with advantage as a soporific, only for its depressing after-effects, and for the fact that we have many more suitable drugs for most cases. Personally, I would rather have a glass of stout as a soporific than any of those depressing sulphur compounds which German manufacturers so diligently foist on the public. Alcohol has an advantage over morphine in that it has not an early paralytic effect on the respiratory centre.

Professor Gotch, in Schafer's *Physiology*, quotes the careful experiments of Piotrowski on the effects of alcohol and other agents on the excitability and conductivity of nerve.

'Alcohol vapour caused an initial increase in the local excitability and to a less degree in conductivity ; this soon changed, the conductivity becoming rapidly impaired before the local excitability diminished ; on the cessation of the alcohol vapour the normal conductivity and excitability were reinstated, but the latter returned quickly, the former much more slowly. A stage in the alcohol treatment was always obtained in which the excitation of the central end of the nerve was quite ineffectual, whilst that of the altered nerve in the chamber was increased in effectiveness. . . . It must therefore be concluded that CO_2 and CO are agents which influence local excitability more than conductivity, whilst alcohol influences conductivity more than local excitability. The distinction between the effects of CO_2 and alcohol as regards conductivity is further demonstrated by determining the rate of propagation from the central excitation to the motorial nerve endings. CO_2 and CO have but little influence upon this, whereas alcohol vapour causes a retardation from 28 to 4 metres per second.

Professor Gotch also shows that alcohol and morphine increase while coffee diminishes reaction time. Large doses of alcohol determine chromatolysis of the nerve cells. The long-continued use of alcohol, even without the assistance of arsenic, causes multiple neuritis ; and as has been well shown by Dr. A. W. Campbell, also produces degenerative changes in the spinal cord and brain. The cardiac ganglia are occasionally involved in these degenerative processes.

Cells.

The fourth Lees and Raper Memorial Lecture, delivered by Professor Sims Woodhead, will well repay perusal. In it he shows the deleterious effects of alcohol as a protoplasmic poison, and that the changes in the nerve and muscle cells closely resemble those produced by the diphtheria and other toxines. He points out that it interferes with the oxidation of the tissues and leads to fatty degeneration. It lessens phagocytosis, diminishes the resistance to acute and specific diseases, and interferes with the acquisition of immunity. Large doses of alcohol lowers temperature by increasing the dissipation of heat through the increased vascularity of the skin and greater activity of the sweat glands, and its paralysing effect on the normal reaction of the skin and blood vessels to cold. It is said to lessen the waste of fat and carbohydrates, and from the fact that it is slowly oxidized in the system, it must give rise to the production of a certain amount of heat and energy, but its toxic effects are too marked for it to have much value as a food. On the one hand it is often stated to be only slowly oxidized in the system and to be partly excreted unchanged, therefore it must be an indifferent food ; while on the other hand the same authority may assert that it readily seizes on the oxygen, and thus deprives the fat and carbohydrates of their necessary supply. Both these contradictory statements can scarcely be true, and it should be remembered that there is always a good deal of unused oxygen even in venous blood. The facts would seem to me to be that alcohol can be oxidized, and is therefore capable of generating heat-energy, but from its paralytic effect on protoplasm it interferes with anabolism and leads to dissolution of the proteid molecule with the formation of fat.

The advice of the Apostle Paul to Timothy, to take a little wine for thy stomach's sake and thine often infirmities, must have referred to a fairly dilute solution of alcohol, as we know that while strong potations increase the secretion of gastric juice, they inhibit the digestive function and eventually establish a chronic gastric catarrh. The injurious effects of alcohol in the induction of cirrhosis of the liver are well known, and its equally pernicious influence on the kidneys through its interference with assimilation and nutrition has been clearly established. Having now dealt with the physiological and, to a less extent, the pathological influences of alcohol it remains for us to consider how far these effects can be judiciously used in the treatment of our patients.

THERAPEUTICS.

Pneumonia.

The treatment of this disease has been a battle-ground for at least half a century, and the position which alcohol should occupy is still a very moot point in the minds of many. Its use, perhaps, as frequently depends on the proclivities of the friends of the patient as on the convictions of the doctor. The fearful mortality which attends this disease when it occurs in alcoholic subjects should have aroused attention as to its probable futility as a therapeutic agent, but the pernicious teaching of Todd on this subject has so swayed medical opinion in this country for the last fifty years that the usual practice here has been a long way behind that of Ireland and Scotland where the judicious teaching of such men as Graves, Stokes, and Sir William Gairdner has kept the medicinal use of alcohol within bounds.

Both acute and chronic alcoholism lead to cardiac asthenia and dilatation of the tricuspid orifice, and the frequently associated abdominal distension interferes with the respiratory pump. Such patients, therefore, are liable to succumb rapidly from cardiac failure, accompanied by a large *ante mortem* clot in the right side. The case is quite different with the gouty man; his heart is usually hypertrophied and healthy, and if there be no kidney mischief he stands an attack of pneumonia well.

The feverish blood is sufficient stimulus for the heart without alcohol, which is best reserved for convalescence. Alcohol diminishes the power of the cardiac muscle, and owing to the increased diastolic pressure and dilatation of the ventricles the effective force of the systole is lessened. Alcohol lessens the peripheral resistance by producing vasomotor paresis, an effect which cannot often be required as the systemic blood-pressure is usually too low without any adventitious assistance. There are, however, certain cases in which a small amount may do good, such as those in which the pulse is small and irregular, and the vessels rather rigid, but even in these atropine and nitroglycerine answer better. If cold application produces too great an effect on the circulation, this can be counteracted by a little warm stimulant. If there be any pain in the abdomen, or other reflex disturbance, or flatulent distension of the stomach a little brandy does good. However, for the latter purpose there are many better antiseptics, such as salicylic acid and Dover's powder, tincture of iodine and glycerine, etc. Hiccough is not so common in pneumonia since the free use of alcohol has been lessened.

Almost the only use for alcohol in pneumonia is as a soporific, and when given for this purpose I prefer a light draught beer or stout containing about 4 or 5 per cent. of alcohol. As a soporific it should be given about 9 or 10 o'clock at night, and not during the day ; it is chiefly useful in alcoholic subjects, and where the nervous system is in an irritable condition and accompanied by much muscular tremor. During convalescence, when the stimulus of the heated blood has been removed, the blood vessels have contracted, the blood-pressure has risen, and the enfeebled heart is scarcely able to meet the increased peripheral resistance; then alcohol does good, and at this stage I prefer a good port wine or sound Burgundy.

Pneumonia complicated with delirium tremens is a very fatal malady. It is often difficult to draw a distinction between the delirium of pneumonia and alcoholic delirium complicating pneumonia. Acute or late delirium, by which appellations the complication is frequently known nowadays, is more euphonious than delirium tremens to the public ear. These cases are marked by active, often violent, delirium, delusions of sight and hearing, great tremor, instability of the nervous system, and the knee-jerks are usually absent. In such cases it is essential to keep the nervous system quiet and obtain sleep, but this is often a most difficult problem to solve, especially when the delirium tremens arises late in the pneumonic attack. There must be no mechanical restraint or any struggling with the patient, as thus fatal syncope is readily induced. Sir Douglas Powell's prescription of a large dose of alcohol followed by a hypodermic injection of morphine and atropine is very good. Personally, I would allow about two pints of beer or stout daily as a sedative, to be administered during the evening and night. If necessary a few whiffs of chloroform to keep the patient quiet, and for a hypnotic I am largely influenced by the condition of the circulation. If the pulse be small but moderately firm, and the skin dry or not very moist I order opium and antimony ; if the arteries are lax and rather empty, with embarrassed respiration and very moist skin, I prefer a hypodermic of morphine and atropine, or morphine, and strychnine. The temperature should be reduced by cold sponging or icebags to the abdomen.

Typhoid Fever.

Pneumonia and typhoid fever are the two principal diseases in which alcohol has been largely prescribed, and by many is considered indispensable, but in the latter disease it is even more useless than in the former ; there is scarcely an indication for its use, while the protracted nature of the disease allows this medicament more time to work mischief. It has a somewhat similar effect on the cardiac muscle to that produced by the typhoid toxin. The most severe case of typhoid fever can be better treated without alcohol than with it, and the conditions demanding its use in this disease are very few and far between. Alcohol is not a food in the proper acceptation of the word ; it is a sedative, or, to use a commoner though less accurate designation, stimulant. It causes vasomotor paresis which is usually sufficiently accomplished by the fever poison without any assistance. This effect may be necessary during the chilly stage, during collapse, or to counteract the effect of a cold bath, but in a well-managed case, without any heroic treatment, such influence should not be often necessary. In cases where there is high body temperature with cold extremities I occasionally allow a pint of good bitter beer in the twenty-four hours to lessen peripheral resistance to the circulation. When there is obstinate vomiting a little champagne occasionally does good, and in cases of sudden collapse a few teaspoonfuls of brandy may be given.

By writers on this subject most elaborate rules have been laid down to guide the administration of alcohol according to the state of the heart;

the pulse, the tongue, and the nervous system, but these rules are usually utterly devoid of any physiological basis, and even their authors would have great difficulty in determining beforehand their proper application in practice. Alcohol is not a cardiac tonic, but it is usually prescribed in typhoid fever with that object in view, and we frequently see drugs having a diametrically opposite action—such as alcohol on the one hand, and strychnine or digitalis on the other—given with the view of strengthening the heart's action and tiding the patients over a difficulty. I have seen limbs jumping about under the influence of alcohol and strychnine given with the view of supporting that common bugbear, a weak heart, when there was not the slightest probability of any cardiac failure. We frequently hear of patients being "kept alive" for a certain number of days on brandy; but as these cases generally end in death it would perhaps be more accurate to say that the only nutriment they had during the last few days of life was diluted brandy. The tenure of life held under such conditions is usually dearly bought. I have never been able to see why dying patients should have their mouths parched with brandy, often of abominable quality, which would early make them cry out, if they were only able, for a drop of cold water to moisten the tongue. Some men prescribe alcohol freely in typhoid fever and pneumonia because they believe in its efficacy; others because they are too weak to run counter to the views of the patient's relatives; and teetotalers, who have no personal knowledge of alcohol, because it is the popular thing to do, and they do not like to be considered prejudiced. They have a vague idea that what they consider a potent poison in health must be a powerful remedy in disease. Many of those who prescribe it very sparingly, think that it should be specially given to patients accustomed to it in health so as not to disturb any long-acquired habit, but in my experience—and I am supported by the experience of Sir William Broadbent—these are just the cases which do better with other medicaments. Frequently I prescribe some alcohol for myself and my healthy friends, but when any of them are diseased I am not likely to poison them with this drug. If I were convalescing from typhoid fever I would enjoy some good port, and I do not care to prohibit others from what I would probably take myself. As a food or antipyretic agent it is of very little value, and should be avoided during the febrile stage unless there be some special reasons for its use. The large quantities of alcohol which are frequently prescribed must inevitably lead to cardiac asthenia and so protract convalescence. It is not a cardiac tonic and should be reserved for a time when its potency in lessening peripheral resistance and so relieving the heart will be of service.

Tuberculous Disease.

Alcohol has a predisposing effect to all forms of tuberculous disease; it lessens the resistance of the patient to the toxic effects of the bacilli, weakens the cardiac muscle, impairs assimilation and hastens proteid destruction. It also leads to bronchial and laryngeal catarrh, and hastens the demise of the patients.

Acute Specific Diseases.

Professor Sims Woodhead quotes the experiments of Delearde, and of Laitinen, showing that it was almost impossible to confer immunity against rabies, tetanus, and anthrax on animals that were alcoholized during the period in which they were being vaccinated :—

Although animals first alcoholized for a period and then vaccinated—the alcohol being stopped during the period of vaccination—acquire a certain degree of immunity, they rapidly lose condition when infected. They certainly suffer more severely than do the non-alcoholised animals vaccinated at the same time and infected in the same manner.

Animals which have been protected against tetanus quickly lose their immunity under the influence of alcohol and in the other two diseases the protection is diminished. It therefore follows that alcohol must be injurious in the treatment of these diseases. Professor Sims Woodhead, also, quotes the experiments of A. C. Abbott who found.

That the normal resistance of rabbits to pus-producing organisms is greatly diminished by the use of alcohol when given daily to the stage of acute intoxication . . . not only was pus more readily formed and at an earlier date, but it was formed in larger quantities, and that an animal to which alcohol was given succumbed much more readily than did a non-alcoholized animal.

Personally, I do not know any specific fever in which alcohol can do good.

Diseases of the Nervous System.

We have seen that alcohol has a special affinity for the nervous system It induces not only acute toxic effects such as coma or delirium tremens, but its free and frequent use leads to chronic degenerative changes in the brain, spinal cord and nerves. Its use, therefore, in chronic diseases of the nervous system should be interdicted. We have seen how occasionally it may be beneficially used as a soporific, and in functional disturbances of the nervous system it often does good. When a man is dissatisfied with himself and his neighbours a little alcohol engenders a spirit of contentment and toleration. In cases of neuralgia and the spasmodic form of migraine a glass of stout often affords immense relief, and even its regular use is much less pernicious than antipyrin, phenacetin, antikamnia, etc. In angina pectoris hot whisky or brandy often affords relief, but there are many more effective remedies. In cases of intestinal colic, brandy is a most valuable remedy. Recently a life-abstainer told me with appreciative recollection how a spasmodic affection of this nature from which he was suffering had been immediately removed by a glass of brandy, which a friend had insisted on administering to him. I was really sorry for that man because he seemed to feel that in his lifelong sacrifice for example's sake he had been deprived of an immense amount of happiness.

Shock and Collapse.

A little alcohol may give a temporary sense of relief, but from its marked effect in lowering the blood pressure it must work mischief in both these conditions. I occasionally hear of cases of "extreme collapse" with a temperature of 104° or 105° in which brandy had saved the situation ; and I once heard a surgeon in the witness-box swear that shock might be deferred for lengthened period ; on cross-examination he did not think that it could be deferred for longer than four months. These are conditions which no fellow can understand, not even the men who make such extraordinary statements.

Diseases and Circulatory System.

In practically all cardiac affections alcohol works mischief, as it induces degenerative changes in the cardiac muscle, increases the diastolic pressure, leads to dilatation of the cavities and of the auriculo-ventricular orifices, and consequently lessens the effective force of the cardiac systole. It is true that it diminishes the work of the heart by lessening the resistance in the arterioles and arteries, but this vasomotor paresis, when persistent, lessens the elasticity of the vessels, and so the cardiac energy is not properly stored up in the walls of the arteries during ventricular systole, and given out during diastole. This gives rise to a great difference between the systolic and the diastolic pressures in the arteries, and the ultimate results are that the muscular arteries become dilated and tortuous, and the heart dilated and hypertrophied. The greater the hypertrophy of the heart sooner do degenerative changes and cardiac failure set in.

Alcohol, pure and unadulterated, affects only the vasomotor nerves and the middle coat of the arterioles, but we constantly see in the writings of teetotal advocates all the degenerative changes in the arteries put down to alcohol. They credit it with endarteritis obliterans, atheroma, and calcareous thickening of the valves, conditions wich can only arise under long-continued high blood pressure. If these ignorant and pious frauds would only examine their own arteries they would frequently find more atheroma than exists in drunken sots. Not infrequently I find most marked arteriosclerosis of the whole arterial tree, and involving the kidneys, in lifelong abstainers.

Respiratary System.

We have seen that alcohol can only be of very limited use in pneumonia and tuberculous disease. It is a very common cause of bronchitis, and is always injurious in the treatment of that affection; it and the bronchitis kettle should be relegated to the limbo of the past. In diphtheria it lessens the resistance of the patient, and increases the paralytic effect of the toxin. It might lessen the pain of pleurisy if no better agent were at hand, but there are not many other conditions of the respiratory system where it would act beneficially.

Diseases of the Alimentary System.

Alcohol is a good antiseptic and is recommended by Mr. Jonathan Hutchison as a mouth-wash after operations on the tongue. Personally I try to prevent oral sepsis under all cricumstances, but I don't often waste the whisky in this manner. The prophylactic use of antistreptococcus serum, as adopted by Watson Cheyne and others, should in my opinion, find a wider sphere of usefulness than merely in cases of operations on the mouth. I think that a septic pneumonia which not infrequently follows on cerebral haemorrhage might thus be often obviated.

A little wine is often an aid to digestion, and the effervescing wines increase peristaltic action. If used in too great quantities, or in not sufficiently dilute from, it is apt to set up gastric catarrh and thus destroy any good effect which it may have had. Indirectly it lessens the alkalinity of the blood and leads to gouty changes. In this way alone it might be considered a prophylactic against tuberculous affections, as gouty people are not liable to phthisis, or other debilitating diseases; their troubles are circulatory. It is not the alcohol, but its influences and by-products which give rise to gout.

Alcohol is the potent agent in the production of cirrhosis of the liver; it also usually complicates that disease by inducing cardiac asthenia, dilatation of the tricuspid orifice and congestion of the liver. It is often extremely difficult to get these patients to stop their alcohol, but why any medical man should prescribe it in such cases I fail to see, unless on the principle of a piece of hair of the dog that bit you. Chronic granular kidney is frequently set down to alcohol and no doubt its long-continued excretion may have a determining effect, but I look upon this state of the kidneys as part of a general arterio-sclerosis which has no necessary connexion with alcohol, though the gout and defective metabolism which are induced by alcoholic drinks are important causal factors.

Surgical Operations.

Surgeons are well aware that the worst patients on whom they have got to operate, apart from cases of advanced disease of the kidneys, are alcoholic subjects, yet with a faint glimmer of medicine still in the minds, when anything is going wrong, with their patients they fly to alcohol, unfortunately not for themselves but for their innocent victims.

Gentlemen, I think I have said enough to show you my opinion of the limited utility of alcohol disease: it is for you to consider how far and how freely you will continue its use.—The *British Medical Journal*, JULY 1, 1905.

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"Perhaps the most remarkable example of extreme sensitiveness to medicines is the case of the mysterious and unfortunate Casper Hauser, who was found by police aimlessly wandering about the streets of Nuremberg in the spring of 1828. Dr. Dudgeon has told his story in the *Homœopathic World* of October 1897. From this we learn that he was placed under the care of Professor Daumer who taught him to speak, and gradually elicited from him that he had hitherto lived in a dark, underground cellar, had been fed on black bread and water andhad been deprived of all intercourse with his fellow-creatures. At first he had no more intelligence than a baby; but he learned rapidly. For a long time he was painfully affected by bright light and loud noises. He could distinguish colours in the dark, and felt acutely the slightest blow or touch. Perfumes would bring on convulsive attacks. For long he would not eat anything but black bread on which he had been reared. He was very subject to convulsive attacks, and became seriously ill. In his illness he was under Dr. Preu, an ardent homœopathist, published in the eleventh volume of the *Archiv fur die homæeopathische Heilkunts*—that Dr. Dudgeon's account is taken. Casper Hauser was sensitive in many ways. His vision was so acute that he could count the berries on a bunch of elderberries, at a distance of one hundred paces. He could distinguish colours in total darkness, and he saw best in twilight. He was clairvoyant and had many premonitions. He foretold his attempted assassination of the 17th of October, 1829. (He was actually assassinated a month later.)

The special interest to homœopathists in the historic case of Casper Hauser lies in the fact that he exemplifies a sensitiveness to remedies which occurs in many persons to a degree only somewhat less exaggerated than his. And the reason I here refer to the case is to show that strength of dose, in the allopathic sense, has nothing to do with either the causation or the cure of conditions."

Further on,

"For the remedies were all given to him in more or less infinitesimal form, and yet they produced not only curative but pathogenetic or disease symptoms, and it was not necessary for him even to *take* the remedy—olfaction was quite sufficient to set up their action."

Dr. Clarke again says:

"The 'dose' of *sepia* which Casper Hauser received was absolutely beyond the powers of chemical science to measure or estimate, and yet it was enough to bring out striking features of the *sepia* effects already pictured by Hahnemann in his own provings.

Now let us take another example. In August, 1829, Casper Hauser was gaining flesh. He objected to becoming fat, and Dr. Preu treated him for it. Hahnemann had pointed out that *Calcarea* is useful in the obesity of youthful subjects. Dr. Preu gave Casper Hauser an olfaction of *Calcarea* 30 and with this result. Immediately there occurred cough and compression of head; strong smell from the mouth; and he had a feeling of debility after stool. On the second day his clothes had already become looser. He became excoriated by walking and riding; loathing at meat; great falling of hair; swelling of veins of hands, and heat of face.

Here we have a remedy which whilst correcting the trouble for which it was given, produces, in addition, its over-characteristic symptoms. There was no question here of a large dose causing symptoms, for one and the same dose did both.

The attempted assassination of October 17, 1829, interrupted the series of observations. The wound and the shock threw Casper back into his previous condition of hypersensitiveness to all external impressions, and it was long before he recovered from the effects. His restoration was chiefly effected by mesmerism to which he was extremely responsive; and *Lycopodium* was also of use.

After this Caspar Hauser passed out of the care of Professor Daumer and Dr. Preu; and a second attempt at assassination terminated the career of this mysterious and interesting youth."

Our point of indication is not exact with Casper Hauser's. He could not bear the action of an infinitesimal dose like 30th without producing many pathogenetic results. It was associated with the therapeutical. Olfaction was the last resort with Hauser. Even there he was not safe. The fact we mention is that instead of the therapeutical, other pathogenetic or physiological actions take place even by olfaction. This is an issue of extreme divergence. Therapeutical effect in such sensitive person is rare. It happens but not ordinarily. Our revered friend Dr. Mahendra Lal Sircar had the misfortune to attain that divergence of character. In any complaint he could not bear even the use of the 30th potency in globules without producing other effects and not the therapeutical. Only extreme moderation of diet could slowly remove the illness. Other cases have also come to light. They are generally the issue of over-drugging, mostly, from the orthodox systems and scarcely from homœopathy. Badly used homœopathic medicines can produce a disastrous condition, not less dangerous than that produced by large doses of drugs. With Dr. Sircar there were peculiarities. He rarely used medicines, for the medicines were not likely to take good effect. We cannot understand how that extreme sensitiveness took place without over-drugging. It is an abnormality which requires explanation.

In cases of over-sensitiveness brought on by large doses of medicines, it may be said that the sensitiveness is the result of undue action of medicaments. The continual irritation produced by drugs obliges the human system to adopt a peculiar deviation from toleration. In short, it is a hyperaesthetic condition induced by intoleration of medicines. Cases like Casper Hauser's can be explained on the assumption that his abnormal state ensued on account of the mal-nutrition, which came to exist from his mode of life during infancy. We are inclined to believe that in many cases where such conditions of irritability of the tissues take place, it is mostly due either to mal-nutrition, bad-livelihood, over-drugging, excessive use of alcoholic or other stimulants, narcotism or a peculiar condition of health due to the action of any slow disease, as malaria, syphilis, tuberculosis, etc. It may be that the so-called irritable state may disappear in time. But in a few instances the last suffering is most troublesome. What should be the criterion of treatment in this kind of over-sensitiveness to medicines is difficult to establish. Cases like Casper Hauser's can have the satisfaction of olfaction if it may produce any decided result. In cases of over-drugging it should be the rule not to interfere. But there is the possible danger on account of the intermeddling habit of the family, who cannot estimate the danger of pushing on more medicines. The safest course would be to adopt homœopathy and the practitioner is at liberty to use his *saccharum lactum* for the safety of the patient as well as to show the miracle of homœopathic medicines.

Recently we had the difficulty of treating a few cases. A child of two years was suffering from fever and a chronic patch of pneumonic deposit on the back of his left lung. He was rarely without fever. Trial of a medicine or two indicated the peculiar abnormal condition. Even the 30th or 200th globules could not be allowed without producing aggravation. Drop dose of rectified spirit caused a deviation which was enough manifest. *Saccharum lactum* or unmedicated globules with rarely a dose of the 30th attenuation in globules could suit him. No medicine could be tolerated at first but after the lapse of many days he could endure a dose in a week and that was enough for him. This case is still under our treatment and is progressing favourably. He was long under the favour of the allopathic school.

In another case, a lady used to over-drugging arrived at such a state of irritability that no medicine in any dilution would suit her. Even 200th in globules failed to give her respite from the many pangs of nervousness. She could be cured mostly without medicine, by giving distilled water generally and a dose of medicine occasionally, strict regularity of diet was necessary for her.

It should be said that this kind of over-sensitiveness to medicine rarely happens. The general rule is that toleration for medicines manifests itself to save the patient from the bad action of the over-burdened doses, to be ejected in some form or other with secretions and evacuations. The intolerance is generally the result of maladministration of medicines where excretions are deficient or adopt morbid character. It may be due to the orthodox practice or the result of the treatment of the new school. Homœopathy has its good use as well as its danger, on account of faulty administration.

The result of treatment of over-sensitiveness by judicious homœopathy is generally successful. It is rather easy to treat a case originated from over-drugging of large quantities of drugs, as administered by orthodox schools. The irritation produced by the administration of homœopathic over-drugging is difficult to be treated. The worst is when that kind of intoleration is brought on by high dilutions say 30th or 200th of homœopathic medicines. As for all high dilutions we can impose little faith on account of their unsystematic and irregular preparations. Be this as it may, the danger from the excessive use of homœopathic medicines is no less than the administration of massive doses of polypharmacy. The irritation from the undue use of infinitesimal attenuations is manifest in the case of over-sensitives.

Rectified spirit in drop doses or sugar of milk in any form generally suits a case of irritability produced by massive doses. It is not so when the case has been spoiled by homoeopathy. There even the drop-dose of rectified spirit produces an unbecoming sensation. Sugar of milk produces either diarrhoea or excessive micturition. It is an admitted fact that rectified spirit in drop doses or sugar milk in small quantities can produce undue pathogenetic action which sometimes becomes intolerable to the patient. If it be a principle to avoid the frequent administration of medicines in the case of over-sensitives, then the form to satisfy the patient's anxious desire for using medicine can only be the use of distilled water. In fact that is the best way to bring peace to the inordinate hankering of medicine, if the direct method of stopping its use do not avail. Another fact which should be mentioned in this connection is the judicious use of diet. Persons suffering from this kind of extreme sensitiveness are apt to commit mistakes in many ways. The frequent and repeated use of massive doses will be to their contentment. The fanciful habit of selecting diet produces perhaps a greater mischief than the mistake of using immoderate doses of medicaments. There may be other indiscretions which contribute to the result of producing the distemper. Taking into consideration all these facts, it may be said that the restraint in the administration of medicine is not enough for the welfare of the patient. Bad dietetics and other injurious practices require a moderation or cessation which can ensure the desired result. Scrutinising observation of the attending physician may be effective.

Over-sensitiveness to medicine in persons of high life require a careful method of treatment which rarely proves successful to the efforts of young practitioners. They in their endeavour to benefit the patient, generally administer medicines in repeated doses which are not conducive to beneficial results. Further, high life of different nations require a careful study with regard to their individual habits which can only be acquired from close acquaintance. For this reason, an attending physician must have knowledge of that kind which can make him an observant man if facilities are afforded to him. In India, the task is very difficult to perform, for the multiplicity of races, languages and creeds. In short the first lesson is toleration, and the second is scrutinising observation.

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COMMON DISEASES AND THEIR TREATMENT.

XIV.

(Continued from last Number p. 362.*)*

Picricum acidum has the following symptoms: Veins sunken worse left side; trembling of all muscles; *tired feeling* (Phos. ac.) on waking and walking; *on least exertion; tired feeling with lame sensation over whole body, with no desire to talk or do anything and indifference;* numbness with pains, as when taking cold; cancerous cachexia; all pains lasted till 8 p.m.; soreness and lameness worse left side, in morning when rising, with heavy throbbing pains; aggravation in open air and from cold water; pimples and boils on the face.

Picric acid has perhaps rarely been used for abscess, though it is a tried remedy for boils. It is not impossible to suggest that it may be efficacious in cases of abscess where there is throbbing pain with inflammation, but the pain is intensified on the application of cold water. Tired feeling is a necessary consequence. Though this kind of cases is bound to be few in number yet there are occasions where the cold application does not lessen the throbbing pain but produces aggravation of the pain attended by numbness. Picric acid is prepared by the action of nitric acid on carbolic acid, salicin, silk, etc. The frequent use of carbolic acid with nitric acid has given its name of carbazotic acid or tri-nitro-carbolic acid. Taking into consideration the two acids from which it is generally manufactured, it can be said that Picric acid may serve the purpose of reducing inflammation in exhausted healths mostly due to syphilis or any other debilitated condition when as its effect multiple abscesses are produced. It seems to be an analogue of Iodoform as far as the physiological action is considered. The combination of the two irritants nitric and carbolic acids suggests its use in low kind of inflammation, taking into consideration the pathogenetic action of Picric acid. The fashion of using Iodoform may be replaced by the use of Picric acid as an external application in unhealthy ulceration. It has been used in burns of the first and the second degree. The following remarks occur in Clarke's Materia medica: "Blackwood finds it painless anodyne, antiseptic, preventing inflammation and suppuration and septic poisoning. It coagulates the albuminous exudation, and healing takes place under the coagulum. The staining of the hands and linen caused by the dressing can be removed by *Boracic acid.*"

The fact of curing cases of diabetes by Picric acid tends to support the statement that the medicine should be used in diabetic inflammations and ulcers. Carbuncle comes within its sphere of action even occurring in cases of diabetes. Unhealthy ulceration and low, chronic inflammation occurring in persons of exhausted health due to sexual excess can have its use.

Picric acid is said to produce the picture of cancerous cachexia. But whether its use can allay the cancerous inflammation and ulceration with pain remains to be observed. At the beginning of cancerous inflammation it is worth a trial.

Plantago major has been used to relieve burns, scalds, inflammation of glands, especially of the breast, bruises, incised wounds, bites of animals, etc. It can not be said that the medicine has not been used in inflammations general or particular. It has the following symptoms: Fugitive pains in the left side; bruised feeling in front half of head, face, jaws and gums; bruised maddening feeling in brain, can not bear the slightest contradiction; bruised pain in muscles of upper arm on moving or lifting it, and on resting it, stiffness as from a blow or wound; sprained pain in left knee (which was sprained and lame for several weeks five years ago but has not troubled him since); soreness of left leg below knee as if it had been strained; inflammatory affections of the skin and involvement of cellular tissue.

It seems that Plantago may be useful in cases of bruised inflammations, or inflammations presenting symptoms as if being bruised. A case of biting by rattlesnake has been published by Clarke. It is as follows: "A case is related (H. R., XI, [illegible]) of a man who allowed himself to be bitten by rattle, snakes and cured himself by drinking the juice of the plant and applying bruised leaves to the bites, changing them frequently." It has also been used as a local remedy "in homœopathy, and one of its local uses is as an application to inflamed and painful piles."

Platinum has, *Bruised pain on pressure in the parts affected by cramp-like pain, painful tremulousness of whole body with throbbing in veins; tremulous sensation at times through whole body* (Arg. nit., Gels.); *numbness; painful as from a blow;* violent shocks as if bound too tightly with ligatures; pains as from a contusion, a blow, or a bruise, especially when pressing on parts affected; pains slight at commencement, increase gradually, often at irregular intervals and diminish in the same manner; the spasmodic attacks manifest themselves chiefly at daybreak; affections caused by fright, by vexation, or by a fit of passion appear alternately; dull pushing or inward pressing pains as from dull blows; numbness of *coccyx when sitting as after a blow;* contusive pain in loins and in back especially when pressing on them or else when bending backwards; pain in back and small of back as if broken after a walk; worse when bending backwards; painful throbbing in fingers.

In Hemple and Arndt we find the following remarks as stated by Dr. V. Mayer: "Platina presents no phenomena of hyperæmia, no independent or primary inflammation, no strikingly accelerated circulation."

We are inclined to take exception to the above remark, for Platina has mostly been employed in congestion and inflammation of the sexual organs. Dysmenorrhoea, menorrhagia and metrorhagia form its chief field of application. It may be said that these diseases are nothing but different kinds of inflammation attended by nervous symptoms. Further, the tension in particular parts proves the inward inflammation. The symptoms of tension in limbs as if bound too tightly with ligatures, and pains as from a contusion, a blow or a bruise present a picture which shows the fact of inflammation of sub-acute type. The exact field of application of the medicine in inflammation is not known. The symptoms suggest that it can be well administered in pains of the coccyx, benumbed pain in any part as from a blow. The benumbed pain points out the fact of anaesthesia and not hyperaesthesia. Though some painful uterine diseases want its use, yet the dullness of the affected inflammatory part is the indication of its province. Its application therefore may rest on any subacute inflammation which produces pain on pressure and has its aggravation from fright, vexation or fit of passion. Dull inward pressing pains as from dull blows leads to the same fact of inward subacute inflammation. The sphere of its influence is limited but significant on account of the many pathogenetic characteristics.

Plumbum or lead is used in various forms, either metal, acetate or carbonate. Hempel and Arndt write as follows: "The metal is found native or in combination with other substances, sulphur, oxygen, or acids. We use the metallic lead properly purified of which we make triturations. The *acetate of lead*, also known as sugar of lead, is likewise used by homoeopathic physicians.

The dynamic effect of the metal and its salts, the acetate and carbonate of lead, seem to be so nearly alike that these various preparations are often used indiscriminately."

In fact we use metallic lead more than any other preparation of Plumbum. The general feature of lead symptoms is anæmia than hyperæmia. Noack and Trinks in their arrangement of post mortem symptoms come to the following details of chronic poisoning: "As a consequence of a chronic poisoning by lead were discovered: shrinking and considerable contraction of the inner cavities, particularly of the stomach and bowels, hardness of the parenchymatous organs, which had become much smaller in consequence of a morbid contraction; great thinness and almost inorganic hardness of the muscles; complete shrivelling of the mucous and adipose tissues. A special examination of the neurilemma and the nervous substance is entirely wanting."

With the general feature of anaemia there is hyperaemia of a few organs. The cerebral substance is pale and soft but extravasated blood is found on the surface of the brain. The left auricle is atrophied pale and contracted; the wall of the left ventricle is thick of a pale brown colour containing bloody lymph with black red coagulated blood. The small lobe of the liver is inflamed; the right lobe is brown red. The duodenum and jejunum present involuted and inflamed appearance. The blood vessels of the intestines are generally full of blue blood. All these facts prove that some organs or parts of an organ show signs of congestion and rarely inflammation, except with the left lobe of the liver. The congestion is more venous than arterial. The venous stasis can produce symptoms similar to hyperaemia though not of inflammation.

In Allen we find the following remarks:

"It produces general interstitial inflammation characterised by proliferation of connective tissue (nerve, muscle and parenchyma of organs.)" The general interstitial inflammation assumes the character of a chronic type the result being the proliferation of cells. The pathogenetic symptoms of the medicine are as follows: Retraction of soft parts in general; sphacelus; grey ulcers; violent tingling pains in bones, coming on fitfully; excessive uric acid in the blood; anaemia; anaesthesia; hyperaesthesia; violent pains in limbs, especially in muscular parts of thighs; dilatation of veins of the extremities; neuralgic pains; sprained sensation in the extremities; as if abscess forming near umbilicus.

The possible use of Plumbum in abscess is where congestive hyperaemia assumes a chronic character. The engorgement of the veins may lead to results which can form abscess. In that kind of venous congestion Plumbum seems to be a suitable remedy. The formation of an abscess near umbilicus points out its specific character. The use of Plumbum being very limited, its help may be sought for suitable purposes without difficulty.

(To be continued.)

REVIEW.

Annual Report of the Royal Botanic Garden, Calcutta. For the year 1904-1905.

With regard to the economic work, Lt. Col. Prain and Mr. J. R. Drummond, I.C.S., were engaged with Agaves, being a continuation of the work of the previous year. Experiments were undertaken with 'Sunn' hemps. The cotton cultivation for identification was not successful.

The department of Herbarium was gradually enriched by continued additions. The arrangement of dried plants was rather neglected. Most of them did not find place in the cabinet but were piled on tables and floor. The scientific staff had not been increased and the disordered state of things remained. The parsimony of Government is anything but creditable.

A beginning has been made for ,a laboratory and museum. So long ago as in 1876, Sir Richard Temple wrote two Minutes on Botanical research. It is a curious fact that after thirty years of cogitation a beginning was made in the year under review. Well, after all, the commencement has been made.

Annual Report on the Government Cinchona Plantation and Factory in Bengal. For the year 1904-1905.

Captan A. T. Gage, I.M.S., was in charge of the plantation and factory at Sikkim. The materials manufactured were 13,068 lbs. of sulphate of quinine, 545 lbs. of sulphate of cinchonidine, and 2,026 lbs. of cinchona febrifuge, by the new process, which remains unexplained, or in total 15,639 lbs. The total receipt was Rs. 2,28, 727.

Report on the Administration of the Salt Department, for 1904-1905.

The satisfactory feature of the whole business is the further reduction from Rs. 2 to Rs. 1-8 per maund of 82⅐ lbs. avoirdupois. We only want that the duty on salt should entirely cease. Bengal is the principal centre for the consumption of foreign salt. It can be hoped that our indigenous salts will replace the foreign articles, for various reasons of financial and economic grounds.

Annual Returns of the Lunatic Asylums in Bengal, for the year 1904.

The gradual increase of the criminal lunatics is a fact which admits of other explanations besides their detention. During the period 1884-88 the number was 380; from 1894-98 it was 475; in the time between 1899-1903, it came to 515, and in 1904 the figure rose to 556. From 1884 to 1904, there was an increase of 176. This large augmentation of criminal lunatics cannot be said to be due to their detention. The gradual increase of crime may be said to be the keynote of this increase. In the Annual Report on Police Administration of the Town of Calcutta and its suburbs for the year 1904 we find the number of cognizable cases in 1904 to be 42,892 against 38,853 in 1903. The gradual increase of cognizable cases serves the partial explanation to the addition of criminal lunatics. Another fact which comes to the front is that criminal lunatics remain unamenable to the treatment of the orthodox method. It should be said that treatment with homœopathic remedies will serve to reduce the number to a great extent. Hahnemann has showed what should be the treatment by curing the celebrated Hanoverian statesman Klocken-bring. The following is from Dr. Clarke's book, Homœopathy Explained: "Hahnemann treated this dangerous lunatic on a non-restraint plan, without the use of chains or corporal punishment, which were in universal use at that period." This kind of treatment is also in vogue in lunatic asylums as, far as we know. Kind treatment remains yet unknown.

The largest number was derived from the following occupations. Beggars are noticeable among them. In Bengal asylums in 1902 their number was 20; in 1903—21 and in 1904—24. Cultivators in 1902 gave 55 cases; in 1903—77 and in 1904—75. Labourers formed in 1902—33 cases; in 1903—27 and in 1904—29. From persons having no occupation in 1902 there were 18 cases; in 1903—24 and in 1904—26. From persons whose occupations were unknown, the figure for 1902—43; 1903—48; 1904—42. Shopkeepers formed in 1902, 13 cases; in 1903—5; in 1904—4. All these occupations from which the largest number of cases was derived explain the fact of comparative poverty with other bad habits associated with it. Intoxications which mostly lead to insanity are ganja-smoking and spirit-drinking. Ganja-smoking with spirit-drinking is a well-known fruitful cause of the disease in India. The total number of cases from ganja-smoking was 325 in 1904. Spirit-drinking gave 38. This is a prominent fact why the government should be dissuaded from deriving income by selling *abkaris*. All other intoxicants formed 22 cases. 27 cases are said to have been derived from fever. Heredity has been ascribed in 87 cases. The discrepancy is observable as the congenital cases were only 10. Heredity without congenital defect comes to the class of acquired characters. All other causes favoured very few cases.

The noticeable fact is that the Government of Bengal is reluctant to admit in the lunatic asylums cases except those "who are regarded as dangerous or who are in such a state of destitution that their admission is demanded by common humanity." It should be said that officers of the Government are generally reluctant to recommend the admission of lunatics to increase the cost of the Government, even where they are fit to be placed in asylums.

EDITOR'S NOTES.

X-rays and Homeopathy.

The following is an extract from Dr. Sutherland's paper "Can X-rays be used Homœopathically" which was read before the Boston Homœopathic Medical Society first published in the June number of the North American Journal of Homœopathy and reprinted in the July number of the Monthly Homœopathic Review.

To be able to use any drug or any other agent for therapeutical purpose according to the laws of similars two things are necessary. First to ascertain the pathogenetic actions of the drug or agent and secondly to be able to regulate the dose. As regards the pathogenetic action of the X-rays the current electro-therapeutical literature contains a mine of such knowledge. The following is a brief summary of the provings and poisonings of this agent :—Erythema ; pigmentation ; blanching and losing of hairs ; dermatitis ; tingling and burning sensations ; desquamation ; vesiculation, &c. In most cases there is very great burning or itching. In some cases the burning is very intense and persistent. Rarely the pain is absent or not severe. In cases of continued exposure to X-rays a kind of keratitis develops which has shown unmistakable evidence of malignancy.

As regards the posological side of the question it is true that this force can not be diluted or potentised but it can be sufficiently regulated and controlled so as to produce only therapeutic effects. There are several records of cures and palliations of itching, pain and other subjective symptoms; eczema ; different forms of dermatitis, and even of malignant conditions the chief phenomenon of which is destruction of tissues.

Most convincing proofs of its effects have also been obtained from the slight pains of trachoma to the more severe sufferings of rheumatoid arthritis, the excruciating pains of neuralgia, and the most agonizing tortures of sarcoma and carcinoma.

In conclusion Dr. Sutherland says "My own experience along this line has been limited to relatively few cases, but I think I have cured cases of neuralgia, cervical adenitis, eczema, acne, and the dermatitis produced by formaldehyde ; and have arrested the growth of cancer, as well as relieved excruciating pain by the use of X-rays."

The Typhoid Agglutination Test.

The British Medical Journal of August 5, says :

"HERBERT FOX (*Univ. Penn. Med. Bull.*. June, 1905) has compared the agglutinating properties of the serum of 94 typhoid fever patients on B. typhosus, B. enteritidis (Gaertner), and B. Paratyphosus (A.). Only 12 of these cases showed any agglutination of the paratyphoid organism. Four of these 12 were proved to be true typhoids by blood culture, and the entire 12 gave diagnostic reactions with B. typhosus. In 6 of the cases the two organisms were clumped to the same limit, while in 5 the typhoid bacillus was affected in higher dilutions, and in only 1 case was the reverse true; 82 out of the 94 cases gave a positive reaction with B. enteritidis at some time, or other during their course—19 of these 82 cases were tested more than once, and 14 of these 19 gave a reaction to the Gaertner bacillus which appeared before the reaction to B. typhosus was obtainable in higher dilutions. Fox finds that there is a close relationship of the agglutinating bodies of B. typhosus and B. enteritidis, but that agglutination of the latter appears early, and also disappears early, whilst the special clumping body of the former appears somewhat later, and persists for a longer time."

After all, it appears that the agglutination test does not satisfy the demand of clinical investigation. For many reasons private cases want distinct treatment from hospital patients. Further the agglutination effect does not present particular line of demarcation between the actions of B. typhosus and B. enteritidis. The difference between them being the period of existence of the agglutination. Their characteristic peculiarities are not enough evident so as to arrive at a definite conclusion.

The Transmission of Human Tuberculosis to the Calf.

We take the undermentioned statement from the British Medical Journal of August 12:

"A. Eber (*Beitr. z. Klinik d. Tuberk.*, Bd. 3, 4 Hft., 1905), employing human tuberculous material obtained from obductions made at the Leipzig Children's Hospital, succeeded in exciting a typical bovine tuberculosis in seven non-tuberculous, healthy calves experimentally infected therewith. He states that neither macroscopically nor microscopically could any difference be detected between the lesions determined in the animals by the human bacillus tuberculosis and those formed either in spontaneously-infected calves or in calves experimentally inoculated with the bacilli obtained from undoubted cases of bovine tuberculosis. Full experimental details are given. The author concludes that Koch's statement to the effect that the bacillus of tuberculosis in man is essentially different from the bacillus causing bovine tuberculosis is erroneous."

We always entertained serious doubt as to the different nature of the human and the bovine tuberculosis from our clinical experience. We can generally trace the infection from cow's milk. The dairyman's cows mostly transfer the fatal disease. The fact is more observed in Calcutta than in rural places, for the limited space and the bad sheds allowed to the cows in the town are of such a nature which aggravate the mischief. On the other hand the disease is rare in villages. The transmission through sputum is exceedingly rare, for we scarcely get two tubercular cases in the same house within a decade or more.

The Physiology of Hiccough.

The following interesting observation has been recorded in the Lancet of August 26:

"The physiology of hiccough is interesting and should be remembered because the presence or absence of this symptom sometimes forms a valuable indication in the treatment of dyspeptic subjects. The mechanism which produces hiccough or *singultus* is the same as that producing the "cry" which often accompanies an epileptic fit, the so-called "bark" of sufferers from hydrophobia and tetanus, and the occasionally recorded noises proceeding from "the silent dead" when rigor mortis is setting in. The mechanism is akin likewise to that of sighing and yawning, which modifications of respiration, however, are under the control of the will. The noise emitted is due to a rapid clonic spasm of the diaphragm, causing a premature inspiratory act, while the walls of the glottis are not sufficiently abducted to allow the air to enter the trachea quietly. If the diaphragm contracts very energetically the result is retching and vomiting. The inability to maintain voluntarily the regular respiratory rhythm is a well-known condition precedent to actual sea-sickness and in fact the etiology of hiccough is sufficient to explain the physiological action of emetics, physical or pharmacological. The proximate cause of hiccough is the sudden contraction of the diaphragm by direction of the phrenic nerves. These lengthy nerves may be stimulated directly, centrally, during their cervical or thoracic course or at their terminal filaments; they may be the final carriers of reflex messages, particularly from the ubiquitous vagus nerve; occasionally hiccough occurs as a functional neurosis, although some organic cause, patent or latent, as a general rule can be found. The most commonly occurring stimuli proceed from below the diaphragm, either from some local irritation of the peritoneum, as in perityphlitis, or from an irritated stomach or intestine; thus the too liberal use of alcohol or of red pepper in "devilled" foods, or the existence of flatus, may all stimulate the afferent fibres of the vagus and perhaps consummate in emesis. Local irritation of the pharynx or the mechanical pressure of an aneurysm or a neoplasm upon the efferent phrenic nerves may lead to distressingly chronic attacks of hiccough. With paresis of the phrenic nerves this manifestation is absent. Of the many therapeutic agencies recommended sneezing is one of the most efficient; it is also one of the most ancient, for Plato tells us that it succeeded with Aristophanes when all other means failed to arrest an attack of hiccough."

For more than three decades hiccough is ascribed to clonic spasm of the diaphragm, due to the irritation of the phrenic nerve, the excitability being transmitted by the vagus. The same explanation holds good for dry asthma, vomiting, the cry of the epileptics and the bark of the hydrophobics. This rational explanation has not been contested and therefore remains acceptable.

Constructive Homicide.

The Lancet of 26th August explains the rare form of homicide thus:

"At the Shoreditch coroner's court on August 18th Dr. W. Wynn Westcott held an inquest upon the body of a man, said to be 62 years of age, who had died immediately after a larceny from his person had been committed in the following circumstances. A youth had grabbed at and carried away his watch-chain; the deceased man chased the culprit for some distance when, apparently being overcome by an attack of syncope, he fell down; here was no evidence of assault or battery. He was helped on to a chair and vomited while propped up thereon. He was then placed in a pony-cart but before the surgery of the divisional surgeon was reached he had died. The necropsy revealed fatty deposits in the thorax; hypertrophied walls of the heart, the valves of which and the ascending aorta showed traces of atheroma; the left ventricle was firmly contracted; the right side was engorged with blood, as also were both pulmonary bases and the brain. The sudden excitement had led to syncope and death. At the inquest the jury returned a verdict of "Natural death." A case such as this tests the ancient doctrine of "constructive homicide." Was the youth guilty of the felonious homicide of the deceased man? In strict law a man who commits a felony and in so doing causes the death of another person is guilty of that person's death. The most common instance is where a criminal abortion ends fatally owing to either the deficient or the too drastic antiseptic precautions adopted by the operator. In 1837 Mr. Justice Fitzjames Stephen instanced "a case where a man gives another a push with an intention of stealing his watch and the person so pushed having a weak heart......dies." In stating such a case the learned judge, who was also one of the greatest criminologists of our generation, objected to the strict application of the law as to "constructive homicide" in circumstances very similar to those under discussion."

In India the subject of homicide has taken a rare form from the efforts of the Anglo-Indian jurists. Rupture of the spleen is a common occurrence, as well as failure of heart's action. Rupture of the spleen was taken as a case of simple hurt due to the fall of the deceased from pushing or kicking. Now these cases are cited as deaths from natural causes for gross carelessness, without the scrutinising observation of macroscopical facts. Rupture of the spleen generally occurs from violence and it commences from the periphery to the centre, the hypertrophy being worst in the last place. In self-rupture of the spleen we expect the commencement from the greatest hypertrophied portion, that is from the central to the peripheral end. The assumption of the self-rupture of any hypertrophied organ without any violence is open to serious suspicion. The rupture may be from an accidental fall of the deceased through his carelessness or it is inflicted by others who did not think of the effect and without any apprehension of danger. The death of a man in an affray in a tramcar, a few years ago due to the disease of the heart was also ascribed as natural death. The deaths of this nature may not be coustructive homicide but they are not deaths from natural causes. Perhaps the sufferers would have died after a few days. But it is also a noticeable feature that the shortening of life of the deceased by another man by violence requires some kind of punishment more severe than simple hurt. If ignorance of law is not an excuse to violate law, then ignorance of the state of health of the deceased can not favour the culprit who takes the law in his own hand. The condemnable feature is to accept such death as natural.

The Simplest Kind of Protoplasm.

The following is from the Knowledge for August, contributed by Charlton Bastian :

In his work on "The Structure and Functions of Bacteria," Prof. A. Fischer places the nitrifying Bacteria that were discovered and isolated in 1888-91 by Winogradsky among his group of "Prototrophic Bacteria." He says their life-processes are "characterised by an extremely primitive metabolism—a physiological humility which shows them to occupy the very lowest rung of the ladder of life." While on another page he says the materials from which they build up their cells are "inorganic compounds of the very simplest character, carbon dioxide and ammonia, or nitrous acid, with a few mineral salts. They are thus prototrophic in the strictest sense of the word, for a simpler synthesis of proteids than theirs is scarcely conceivable." He further says :—"As might be expected in the case of organisms with oxidising functions, all the nitrifying Bacteria are ærobic. They require no light, and yet, in spite of this, are able to assimilate the CO_2 of the atmosphere."

His other two groups of Bacteria are supposed to be absolutely separated from this primitive group : the "Metatrophic Bacteria," under which are included most of the known forms, because they "cannot live unless they have organic substances at their disposal, both nitrogenous and carbonaceous"; and the "Paratrophic Bacteria," because they "can exist only within the living tissues of other organisms," that is, as true parasites.

It is the object of this article, however, to show (1) that a sharp distinction between these first two groups does not exist, seeing that common "Metatrophic Bacteria," as well as some Torulæ are capable of taking on life-processes even simpler than those shown by any of the hitherto described forms of the "Prototrophic Bacteria"; and (2) of showing further that such simplest of all life-processes are not of ærobic type.

The verification of these statements can be easily made. It will only be necessary to prepare solutions of neutral ammonium tartrate in distilled water, using about 9·65 of a gramme of the salt to 30 cubic centimetres of the water (that is ten grains to the ounce), and often the crystals have been dissolved to add to one of the solutions a single drop of a recently prepared turbid hay infusion, and to another a single drop of a recently prepared turbid infusion made from beef or mutton. The two solutions thus inoculated with common active Bacteria may then be placed in the dark within an incubator, maintained at a temperature of 30°—32° C. (86°—89° F.). In about 36 hours both fluids will be found to have become slightly opalescent, owing to the growth, as the microscope will show, of myriads of minute Bacteria, and occasionally of a number of very minute Torulæ.

Though these common Bacteria and Torulæ are thus capable of growing freely in the saline solution without the aid of light, I have found that light distinctly favours the process, since solutions similarly inoculated and left exposed to ordinary daylight have become turbid rather more quickly, even though the temperature to which the solution has been exposed has been about 11° C. (20° F.) lower than that of the incubator.

In order to get rid of the complication caused by the presence even of a single drop of an organic infusion, such as was present at first, other solutions may be inoculated with Bacteria taken from one of the original solutions after five or six days, when their turbidity has become more marked. As a Bacteria in these solutions are probably less numerous and less vigorous than those in the organic infusions, three drops (rather than one) are now introduced into each of two other freshly-prepared ammonium tartrate solutions, one of which may be placed in the incubator as before, and the other left in a corked flask exposed to daylight; and at the lower temperature. The growth of these less vigorous Bacteria is now decidedly less rapid, and seems only capable of occurring at all freely when aided by daylight. In the flask on the table the fluid will become slightly opalescent in four or five days, and this opalescence increases for a few days, when a sediment begins to form. But the fluid in the incubator may show no distinct opalescence, even for a couple of weeks or more, though a very minute amount of sediment will accumulate.

Examination of the sediment taken from one of these second inoculation flasks which has been exposed to daylight will show masses of Bacteria, mixed with Torulæ or other Fungus spores, together with a delicate, much-twisted mycelium.

So far there is nothing to show that the Bacteria and Torulæ which grow freely in the simple ammoniacal solution are not—as "Prototrophic Bacteria" generally are said to be—ærobic organisms taking their CO_2 from the atmosphere. That point, however, was settled by me as long ago as 1871, when I showed that a solution of the same kind in a flask with a narrow neck might, with the aid of an air pump, be boiled at a temperature of about 90°F. (so as not to injure the organisms already contained in the fluid), and when the air had thus been expelled, the neck of the flask might be sealed during ebullition, by aid of the blow-pipe flame. Experiments conducted in this way showed that in the course of a few days the fluids became opalescent in the usual way within these sealed airless flasks, and the microscope revealed the usual swarms of Bacteria. There was no mention in these experiments of Torulæ having been found—though I have little doubt that some of them were also present, as these organisms are well known to be generally anœrobic in their mode of growth.

My claim that the organisms growing in this solution of ammonium tartrate in distilled water are building up protoplasm in the simplest known manner may be objected to on the ground of the ultimate organic origin of the tartaric acid, but I am told by Sir William Ramsay that "ammonium tartrate can be synthesised from inorganic material, and this substance is, so far as we know, absolutely identical with ammonium tartrate derived from tartaric acid extracted from winelees."

Seeing that the formula of neutral ammonium tartrate is $(NH_4)_2 C_4 H_4 O_4$, if there were no impurity in the solution, the micro-organisms would have to build up their protoplasm in some way with the aid only of C, H, O, and N—which seems almost incredible. I may say that the ammonium tartrate used was specially prepared for me, some years since, by Messrs. Hopkin and Williams, and that the solutions were made in small flasks of hard, Bohemian glass. Such solutions were formerly twice analysed for me by a skilled chemist, who reported that not the least trace of either sulphur or phosphorus could be detected. Sir William Ramsay has, however been kind enough to analyse another specimen of the solution for me after it had been in the flask for five days and his report is that the "liquid contained an excessively minute trace of sulphur, probably as sulphate; but no phosphoric acid could be detected by the molybdate of ammonium test."

Looking, therefore, to the fact that the nitrifying Bacteria would have at their disposal the "few mineral salts" referred to by Fischer, we may safely assume that the micro-organisms growing in this solution of ammonium tartrate, contaminated only by an "excessively minute trace of sulphur," have, in reality, been building up the simplest known variety of protoplasm. But how much the process would be aided by a little phosphorus may easily be shown by the addition of three grains of sodium phosphate to the solution. An inoculated ammonium tartrate solution with this addition will become turbid more quickly, and will soon yield a far larger amount of micro-organisms.

This subject seems to me one chiefly of biological and chemical interest, and to be of altogether less importance on its botanical side. Looking to the nature of primary inoculating material, it was only to be expected that several different kinds of common Bacteria would be found growing in the solutions, and this has proved to be the case. Dr. Gordon Holmes, the Director of the "Research Fund" at the National Hospital, kindly made a gelatine plate-culture from a second fluid, the first having been inoculated with a drop of a turbid hay infusion, and he reports that there were at least seven different kinds of Bacteria found—Cocci, Diplococci, Bacilli, and a kind of Streptothrix; while a microscopical examination of some of the sediment from the same flask showed, in addition to abundance of Bacteria, a large number of Fungus spores, together with a peculiar spiral and twisted mycelium.

It certainly is very remarkable that these common micro-organisms, previously carrying on their life processes in organic infusions, should be able so rapidly to adapt themselves to an entirely different metabolism. It is much to be desired that some skilled chemists should take the matter up, and endeavour to throw some light upon the steps by which this marvellously simple synthesis of living matter is brought about."

Dr. Charlton Bastian is a prominent exponent of the theory of archebiosis or heterogenesis, opposed to many evolutionists. For the theory of archebiosis the simplest kind of protoplasm is important. It will establish the connecting link between the lifeless and the living world. The radical evolutionists hold the origin of life from inanimate substances, whereas the conservative biologists claim the construction of the evolution theory from the basis as propounded by Darwin. Darwin held the origin of life from primitive animalcules created by God. Ernest Haeckel in his theory of archigonomy, which is almost the same as archebiosis, grasped the radical form of evolution, the origin of life from lifeless substances.

CLINICAL RECORD.

FOUR MENTAL CASES—*LACHESIS, HEPAR S., AURUM BROM.*

By Dr. Stonham.

Case I.

The first case is that of Miss F., aged 40, tall, dark, with bushy, prominent eyebrows, and an unfeminine amount of hair on the upper lip. The father well and strong, a retired colonel; the mother subject to attacks of great irritability, and strange at times; a brother mentally unsound, and at present in Virginia Water; a sister wayward and strange at times. So there is a strong tendency to mental disease, inherited from the mother.

The patient has been imbecile from adolescence. Symptoms first came on after confirmation. She had attended confirmation classes held by an earnest clergyman whose methods were exciting. She became melancholic, seldom talked, took no interest in conversation or passing events, and lost the capacity for mental exertion. She became childish, with occasional fits of temper, in which she would tear her clothing, destroy furniture, &c. As years passed by she became more demented, and at times was almost unmanageable. Occasional fits of acute mania supervened on her usual demented state, and in these she got no sleep, talked incessantly, was destructive, and had to be secured with straps to prevent her doing injury. There was no suicidal or homicidal tendency, but she violently resisted any one who tried to resist her. These maniacal attacks would last for many hours, sometimes days. In the intervals she was quiet and easily managed if kept employed, but very restless; fond of walking. Appetite good. An attendant had to be kept to look after her.

About six months ago she became worse, and the menses, which hitherto had been regular and normal, ceased. The maniacal attacks became much more frequent and of longer duration, and the quiet intervals shorter. She also became more noisy and violent in the attacks, passed her urine under her, and became indecent both in words and actions. She had various treatment by different doctors, and took a large number of different sedatives, especially sulphonal and bromides.

June 11, 1904.—I saw her for the first time. She was then in one of her quiescent periods, and was seated at the piano, where she had for a couple of hours been playing over and over again some musical exercises. When addressed she took no notice, but went on playing continually without a moment's interruption. An attempt to feel her pulse caused angry and violent movements to push me away, and when I desisted she went on playing. I prescribed *Sulph.* 30, a powder every morning, and abstention from all other drugs and from animal food.

June 22nd.—I was sent for to see her in one of her attacks. I found her sitting on a bedstead from which all the clothing had been thrown aside, leaving only a mattress. Her dress consisted only of a nightgown, and she was secured by a strap round the waist, which was fastened to the bedstead. She did not appear to resent being tied up, but when let loose immediately began to try to destory everything about her. She was sitting on the mattress talking incessantly and plaiting her hair and undoing it again as fast as she could. I was told she had been talking incessantly in this way since the previous day but one at 11 p.m—a period of thirty-three hours. The words were spoken very quickly, and repeated over and over again with occasional variations. I could not understand much of what she said. Though she had been talking in this gabble so long, she was not in the least hoarse, but the lips were slightly swollen and there was froth about them.

A strong and peculiar odour was observable about the patient. She took food and drink readily, and especially relished milk or water given to her, and that was the only time the talking ceased, even for a moment. She passed urine under her, but not fæces. I gave her two drops of *Hyoscine* 1-200, in order to quiet her and, if possible, induce sleep.

June 25th.—I found that the *Hyoscine* had not had the slightest effect, and that the patient had gone on talking until the following evening, making altogether about sixty-five hours of continuous gabbling. On that night she had a few hours' sleep, probably from sheer exhaustion, but it recommenced the following morning (the 24th), at 5 a.m., and it has continued till now at 9 a.m. (the 25th). Taking into consideration the cessation of the menses and the loquacity, I prescribed *Lachesis* 30, one powder every alternate night.

July 9th.—During the last fortnight her condition has varied. The menses came on last week the first time for six months; they lasted four days, were of fair quantity and good colour, and for three or four days last week, and for two days at the beginning of this week, she was better and quiet; but during the last few days another attack has come on, to-day she is much the same as when I last saw her, sitting on her mattress talking incessantly, though not quite so uninterruptedly, and she takes some little notice of my presence, which she did not do before. The appetite is still good, and she takes plenty of food. Continue *Lachesis* 30 every second night.

July 23rd.—The attack she was in when I last saw her lasted for another day and a half. Since then she has had no more attacks, and has been quiet and manageable. She has slept from eight to ten hours every night, has taken food well, has been docile and has gone out for an hour's walk every evening. Her father says she has been quite a different person, and has sat up to meals and has behaved like an ordinary individual. She shook hands when I came, and answered questions, not well, but without showing any sign of aversion. She was dressed and downstairs, and required [illegible] restraint whatever, and was moving freely about the house without showing any inclination to do harm to the furniture. Continue *Lachesis* 30, *alt. nocte.*

August 13*th*.—The improvement has continued. No chattering except once or twice for a few minutes at night. Has slept well and taken food well, and has employed herself by day with music, reading aloud, fancy work, and going out for walks or drives. The menstruation recurred at the proper time, and was of good colour and quantity. Repeat med.

September 30*th*.—The next period also came on at the proper time, and was normal. There was no recurrence of any maniacal attack, but she became a little more difficult to manage, and her father having an opportunity of sending her to an asylum in the country, availed himself of it, and I saw her no more. The menstruation had been restored, and the maniacal attacks completely abolished by the action of the *Lachesis*, and I was disappointed not to have the opportunity of trying how much further her mental state could be benefited by homœopathic medication.

CASE II.

My second case is a *Lachesis* case, but this time the patient was a young lady who had previously had good mental and bodily health. I received a message to visit Miss W., because her friends "did not know what to do with her, she had become so strange." I found her sitting in a chair, abstracted and brooding and disinclined to speak. On being asked what was the matter she accused herself of being a wicked woman and of having done something very wrong, but she was not definite as to any particular deed. She also declared that she was under the control of evil spirits, and that she heard them talking to her. I was told by the friends that she had been in this condition for eight days, and that it was at first thought she was merely hysterical. She had had no sleep for many nights and had taken very little food. Was very restless. She had been sent away to the country with a sister, but had only remained away one night. As she got worse and she made some attempt to draw a cord around her neck, her sister brought her home the next day, and I was sent for. I found that the patient was a lady, aged 28, fairly well nourished, though at present looking thin and haggard in the face. Physical examination revealed no organic disease. Tongue was coated. Pulse 84, regular, some constipation. Menstruation commenced a day ago. She had always had good health, and I could not ascertain that there was any mental disease in the family. For several months past she had been much interested in spiritualism, had studied spiritualistic literature, and had been to some *séances*, but not to any within the last few weeks. I ordered her to be kept in bed, to have plenty of food, but no meat or meat extracts, and put her on *Lachesis* 12 pil. ii. four hours. I also left three drops of *Hyoscine* 3x to be given in the night if she was not asleep by one a.m.

March 14th.—I find that the *Hyoscine* was given, and that she obtained about five hours' quiet sleep. She seems better and brighter this morning. She still has the delusions of spirits being about her, but not quite so persistently, and she can be got to talk about other things. Tongue very coated with creamy-white fur. Pulse about 100. The bowels acted in the course of the day. Continue *Lachesis* 12.

March 15th.—Had a good night without any *Hyoscine.* Tongue cleaner. Pulse 100 Rather excited. Will not stay in bed, and with great difficulty is induced to take any breakfast. Menstruation has ceased (4th day). She thinks she has had a "warning," and that spirits are now telling her that she must do some useful work. A bath ordered at temp. 98°. Continue *Lachesis* 12.

March 16th.—A good night, four or five hours of natural sleep. Had spiritualistic delusions that she is a medium and under control last night and this morning, but they went off after taking some food. She is quieter and more content to stay in bed. Bowels slightly opened. Tongue trembles. Pulse 100. Is taking food well. Continue *Lachesis* 12.

March 17th.—When visited I found her dressed and down stairs. She has had a good night's rest, has spoken but little of her delusions, and recognised that they were delusions. Still rather excited in manner. Pulse 76. Taking food well. Tongue cleaner. Bowels well opened. Allowed to go out for a short distance. Rep.

March 19th.—Still improving. No more delusions. Walks out. Rep.

March 21st.—Apparently quite well. Sleeps well. Pulse 84. Has talked no more nonsense. Goes out for walks. Looks bright and cheerful. Is going away to Brighton for a change in a day or two. Continue *Lachesis* 30 pil. ii. nom. night and morning.

May 16th.—Her sister writes from the country to say that she is quite well except for occasionally being a little depressed and melancholy.

These two cases of mental disorder, the one chronic and the other acute, were both treated with *Lachesis* with marked benefit. The drug was well indicated by the mental symptoms. We find under *Lachesis* the symptoms: "Felt as if she was some one else and in the hands of a stronger power. Mental dejection with tendency to look on the dark side of everything and to think oneself despised and persecuted." Kent gives: "She thinks she is under superhuman control. She is compelled to do things by spirits. She hears command, partly in her dream, that she must carry out. She hears voices and warnings." Then again he says, *Lachesis* is full of religious insanity. "She is full of wickedness and has committed the unpardonable sin." This state of mind exactly corresponds to the latter of my two cases. She accused herself of being a wicked woman, and she also thought she was under the control of spirits who gave her warnings and communications.

Stramonium has the symptom "sees ghosts, imagines a voice behind him," but there is no feeling of being under spiritual control.

Anacardium imagines he hears voices of friends far away or dead, and also has the double consciousness of one will, urging to do what the other forbids. *Lachesis* wants this duality, which was also absent in the case narrated.

Then in the first case *Lachesis* was strongly indicated by the incessant talking and by its incoherence. There are many other medicines that have loquacious delirium, or mania with much talking, such as *Actæa*, *Agaricus*, *Paris*, and *Stramonium*, and others, so that another condition was necessary in order that *Lachesis* should be rightly chosen. This was found in the fact that the menses had been suppressed. Complaints from non-appearance of discharges, from suppressed menses is a prominent *Lachesis* symptom.

In *Stramonium* we also have loquacity with suppressed menses, but in this case the patients are usually young women, and the loquacity takes the form of praying or singing or entreating, and is not of such a low grade as was the case in my patient.

CASE III.

My next case is of a different character. It is that of G. Mc.D., aged 46, a canvasser, who came to the London Homœopathic Hospital out-patient department on August 29, 1903, complaining of attacks of constipation with associated mental symptoms. He also had a sore pain at the anus due to piles, which were of the blind variety and did not bleed. He told me that before an attack of constipation he becomes very irritable and imagines people are doing him wrong. He starts kicking in imagination. He feels blood-thirsty as though it would be a pleasure to kill an enemy. He is quite afraid of himself lest he should do some one an injury, especially to people who get in his way when walking along the streets. He mentioned that he knocked down a child in the Strand a few days ago because it got in his way. On one occasion, two years ago, he took up a chair and hurled it across the room at some one who annoyed him by laughing at him. He has suffered mentally and morally in this way, when a constipation attack is coming on, for twenty years. He is also subject to sleepless nights at those times, and the urine contains much sediment. When he finds the attacks are coming on he gets a dose of purgative medicine and has the bowels opened. This relieves all the symptoms, but the condition soon returns. He drank hard for ten years, but has been an abstainer for the last eighteen months, but his attacks come on just as often, and, moreover, he had the attacks for ten years before he ever took to drinking, so that alcoholism does not seem to be a cause. He used also to be a great smoker, but has given that up. He drinks a fair amount of rather stong tea. During the last year he has had three fits of very severe depression, lasting on each occasion about a week, and they have preceded attacks of constipation. He has never had any serious illness, but when a boy between thirteen and fourteen he had two falls from a horse, falling each time on his head, and being insensible for several hours. He is an only child. Father and mother had good health. He was born in Tasmania, and lived there till he was eighteen years of age. Has never married. Indulged in self-abuse till eighteen. Never had syphilis or gonorrhea. Is sensitive to cold and draughts. For the last three and half years he has had a painful right knee from twisting it at cricket; the pain is < night; not affected by walking; < before damp weather, but > during the wet. He takes a good deal walking and cycling exercise. In deciding what medicines to give there were three main points to be considered—(1) the local condition of constipation and piles, which was the chief cause for his coming to the hospital; (2) the mental condition; (3) the general constitution of the patient. The medicine chosen was *Hepar*. Constipation and sore piles is a symptom of *Hepar*, but so it is of a great many medicines, so that of itself would be of little assistance in choosing a remedy, but the mental symptoms strongly corroborated it. In Dr. Clarke's *Dictionary* we find placed under the section "Characteristics" of *Hepar*, and marked in italics, this symptom, quoted from Teste: "Dissatisfaction with oneself and others, a sort of ferocious spleen, as though one could murder a man in cold blood;" and in the symptom register: "Excessive irritability. Vexation and passion with hasty speech—Anger; would have no hesitation in killing a man who offended him, only he knows better." This exactly corresponds to the mental state of the patient when he had his attacks. His knocking down the child in the street who got in his way, and his throwing the chair at the person who offended him, exemplify this. So *Hepar* covered both the local trouble and the mental symptoms. But it also suited the constitutional state of the patient. His attacks were evidently dependent on some disturbance of metabolism, the seat of which was most likely the liver, and *Hepar*, like *Mercury*, has a powerful influence on that organ. The joint pains, too, suggested *Hepar*, which has the peculiarity that its rheumatic pains are better during rain or wet. This was the case with the pain in the twisted knee, which, though worse before wet weather, was better during the wet. The general susceptibility of the patient to cold and draughts was also met by the *Hepar*. He was accordingly given *Hepar* 30 pil. iii., *nocte maneque*.

On August 22nd, three weeks later, he came again and said the bowels had been opened daily since he was here, but with a little more difficulty on the preceding three days when he was cycling, which, he informed me, usually brought on constipation. Piles and soreness at the anus better. A little irritable the last three days during the tendency to constipation. Repeat *Hepar* 30.

September 9th.—Bowels act daily. Slight piles occasionally. No depression. Rep.

October 7th.—Bowels regular. Irritable on two days to a slight degree. He attributed it to taking too much tea. Rep.

November 11th.—No piles, no depression. Bowels regular. No irritability. Rep.

January 13, 1904.—Writes to say he keeps quite well.

CASE IV.

The last case is again a contrast. It is of a lad, aged 16 who was brought up from the country to see me by his sister. She told me that he had been placed in a situation in a post-office, where he had worked very hard studying in order to make himself proficient, and he had also been worried, frightened, and bullied by a senior clerk in the office. But for some months past he had done no work, as he had been out of his mind. His mind gave way rather suddenly, but his sister recalls that for some weeks previously he had not seemed quite himself, and was more than usually despondent. For some weeks now he has taken no notice of his surroundings, rarely speaks, is with difficulty roused to walk, and has slept badly. He has strange fancies, at times expresses a desire to die, but has not shown any tendency to injure himself or any one else. He passes urine and fæces in the bed and in his clothes, and seems quite to have lost all sense of decency, but is not obscene, and shows no sexual perversion. He had been taken to a West End nerve specialist, and by his advice he had been taken to Southsea for a change by the sea, but had become worse, and the friends thought of putting him in an asylum, but before doing so had been advised to try whether homeopathy could do any good.

I found the patient much undergrown for his age, sixteen; he was no taller than most boys of ten or twelve. He scarcely answered when spoken to, and wore an uninterested, apathetic look. All his movements were performed very slowly. No organic disease was anywhere found, but the genital organs were quite puerile; no hair on the genitals; the penis small with long prepuce, which was easily retracted; the testicles very small, quite undeveloped.

In this case both the mental and bodily condition pointed strongly to one medicine—*Aurum*. The depression, melancholy, and weariness of life are strongly marked in *Aurum*. The weariness of life often goes on to induce attempts at suicide, but this was not so with my patient. Then, again, the undeveloped testes is a symptom which has often been noticed in boys who have been benefited by *Aurum*. Obviously it is not a symptom that could occur in a proving, and no drug could produce an *undeveloped* testis, but *Aurum* has a marked influence on the testicles, and has caused hardness and swelling of that organ, there is a close relationship between the condition of the testes and the mental despondency.

As I wished to give a low dilution of *Aurum*, I preferred to give it in a soluble form, and on account of the apathy and sluggishness of his nervous system, I chose the bromide, and ordered *Aurum brom* 3 pil. iii. *ter die*. On April 19, 1902, he went back to the country, and the rest of the treatment was carried on by correspondence.

On *May 5th* (sixteen days later) I heard by letter: "He is more sencible, no more trouble with regard to his evacuations being passed in bed, as he goes properly to w.c. now. He talks more, and is continually saying he wishes he were in heaven. On Saturday evening he was simply beside himself, and rolled on the floor crying all the evening. He occasionally takes a book. If left to himself he will sometimes dress himself, sometimes not. Sleeps well." Repeat *Aurum brom.* 3.

On *May 22nd* (seventeen days later) his sister reported: " He is better, and seems to be quite aware of having been ill, and wishes he had taken things more quietly at the office and not tried to do so much. One morning he took a broom and began amusing himself by sweeping an outside passage, but he got lost soon after, and said, 'he was mixed up. . . . He gets very nervous, and the least thing excites temper. . . . He speaks little, but what he says is sensible. . . . He seems to want to be out of existence, but shows no disposition to injure himself." Repeat *Aurum brom.* 3.

June 9th (eighteen days later) a letter from his sister reported, " I don't know that I have any complaint to make, he seems to be really himself, and is anxious to go back to work. Repeat med. Not to go to work yet.

July 7th (a month later) his sister wrote that, with the exception of being self-willed and easily excited, he seemed quite well. Continue med.

July 28th wrote: "He could not be getting on more satisfactorily."

September 1st.—Heard there had been no relapse. He had gone back to work. Rep.

October 8th.—Still well and doing a full day's work. Rep.

January 9, 1903.—A letter to say he was going on quite satisfactorily, but had acquired the habit of smoking, which he indulged in immoderately. This desire to smoke, I think, was due to the *Aurum*, which was now stopped.

September 19th.—His sister called and said he was getting on well, and growing a little.

September 19, 1904.—She writes to say that he has kept quite well, and was getting on in his employment, having had four advances in position, and was much liked and esteemed.—*Homœopathic World*, July 1, 1905.

Gleanings from Contemporary Literature,

THE PRACTICAL VALUE OF GROCCO'S PARAVERTEBRAL TRIANGLE AS A PHYSICAL SIGN FOR THE DIAGNOSIS AND ESTIMATION OF PLEURAL EFFUSIONS.

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Whenever the size of a pleural effusion is equal to at least a fifth of that of the pleura its diagnosis can be safely established by the major signs at our disposal if we avail ourselves of the mutual confirmation which each of them affords to the others, but when its size is much less than a fifth physical examination does not provide us with the same strict demonstration and the presence of fluid in these small collections has generally to be inferred from the conjunction of suggestive minor signs, symptoms, and clinical circumstances. This was illustrated in two men, aged 26 years and 47 years respectively, recently under my care at St. George's Hospital with small effusions which were not tapped. In the former the fluid was easily identified at first, but at the finish its remainder could not be demonstrated with certainty by the usual methods. In the latter the diagnosis was difficult; and the fluid, which never rose above the lower fourth of the pleura, was not demonstrable by them either during the earliest or during the last stage of the attack. As a fact, owing to the inaccessible position of the *fundus pleuræ* and to its part-occupation by an organ most variable in size, we have not hitherto possessed any fine test comparable to that for small amounts of ascitic or of pericardial fluid. I am led to believe that "Grocco's sign" will now, as a rule, supply that deficiency, as it did in the cases to which I have referred.

I had not realised the capabilities of this interesting sign until it occurred to me to submit it to a crucial test which I found it stood well. I have since then made it the basis of my routine method for the rapid diagnosis of pleural collections, large or small. The fact that it is capable of being checked as to its genuineness in each case and at any moment by the simplest procedure places it on the list of our sure signs, and raises it in respect of trustworthiness even above the analogous sign for pericardial effusion known as the "lower dorsal dull patch"; for in the case of the latter the only crucial test with which I am familiar is its disappearance with the reabsorption of the pericardial fluid. The chief analogy which obtains between these two signs is that, in both cases, the demonstration of the existence of effusion is obtained at a distance from the fluid itself

Grocco's sign is as follows: Whenever fluid (either pus or serum) collects within a free pleura, a paravertebral patch of partial dulness is obtainable in the other, the "dry" pleura, of triangular outline and of the shape and relative size shown in the diagram, which was kindly drawn for me by my able clinical clerk, Mr. W. R. Harris. *The crucial proof* which I employ to test the genuineness of the triangular dulness is its disappearance when the patient assumes the lateral decubitus on the side of the effusion, and its reappearance immediately he sits up or turns on to the sound side. This is at the same time a demonstration of the significance of the dulness, and for clinical purposes a sufficient proof that its production is due to the influence of a mobile fluid. When, however, the pleura is *over-distended* the mobility of the fluid is much reduced. The complete disappearance of Grocco's triangle does not then seem to occur, judging from one case recently examined by me, but the height of the triangle becomes much less with the change to the lateral posture.

The short routine method of differential diagnosis which I use on the strength of these observations consists in passing at once to the examination of the sound side of the back as soon as rough percussion indicates a basic dulness resembling that of effusion. If there should be no Grocco's triangle of dulness there can be no free effusion in the chest. Should a Grocco's triangle be found we may then proceed to apply the crucial test if we wish to be further convinced or to convince others that the dulness is really due to fluid. The mode of percussion is a matter of indifference so long as it is good and therefore efficient.

The next question is the *extent of the effusion.* This too, has its answer in Grocco's triangle. For whereas, as shown by Grocco, the base of the triangle, corresponding in position to the twelfth rib and to the pleural sinus, varies only slightly with the bulk of different effusions (its length ranging between three and six, or even ten, centimetres), the length of the vertical side of the triangle (and, it follows, of the third side also) varies exactly with the upper limit of the effusion. Therefore when a skilled percussor determines by two or three strokes, and with great accuracy if he should be familiar with the pleximeter, the height of the triangle and the slope of its third side, which is then to be continued from apex to base with a touch of the pencil, he has not only to demonstrate that fluid has gathered in the chest but also determine its upper level; and he is able, even before percussing critically the effusion itself, to draw in anticipation at the level of the apex of the triangle a Damoiseau's curve which confirmatory percussion will prove to be absolutely correct. It need hardly be pointed out that the exact volume of the fluid within the chest cannot be measured in vertical inches of dulness and in inches of circumference. Its determination requires mathematical accuracy such as that claimed for the colorimetric method turned to clinical account by Schiffone on the basis of Niclot's method simplified by Achard. But for our usual clinical needs it is enough that we should know whether we have to deal with a few ounces or with pints, and the whole of this information, thanks to Grocco's discovery, can be obtained without any hurry in the space of two minutes.

Historical and explanatory note.—It is noteworthy that Banti in 1902 had described the occasional occurrence of a dulness behind the sternum, due to a fluid effusion pressing its way forward. Grocco's communication to the Twelfth Congress of the Italian Society of Internal Medicine at Rome described the triangle; and since then papers have been published in Italy on the same subject, including one by Pieraccini, another by Luigi Ferrannini, who has given much attention to the clinical study of cases and concludes from his discovery of a radioscopic shadow corresponding to the triangle that the dulness is due to local pulmonary condensation under the pressure of a displaced heart, and specially important papers by G. Baduel and by G. Baduel and Siciliano, whose exceedingly thorough anatomical and experimental research is reported in an excellent review in the Epitome of the *British Medical Journal* of Nov. 26th, 1904.

It should be noted that the dulness of Grocco's triangle is of the partial kind only. As shown in my diagram partial dulness also obtains over the spines included in the vertical side of the triangle; and usually there is more of it below than above. The dulness also lessens from the middle line outwards; but it possesses nevertheless a most definite outer boundary which it is our business to percuss out. My former teaching that the vertebral spines are not dull to percussion except when effusion exists on both sides of the chest remains a true statement in the sense that there is not any absolute dulness of the spines in cases of unilateral effusion.

As to the causation it is perfectly clear that there is no underlying fluid at the site of the triangle. Baduel and Siciliano's transverse frozen sections prove this. My own independent observations had led me to recognise in the mathematical constancy of the lines a strict analogy with the still less variable lines of the "lower dorsal dull patch" and to surmise that this geometry had in both cases an anatomical basis. It seemed to me, too, that the hydrostatic conditions in the sitting posture would lead to greater sagging of the pleural sac at the base, particularly below the level of the floor of the pericardium, where the mediastinum is looser and the abdominal contents offer only a yielding resistance. I arrived at the conclusion, which I find is entirely borne out by Baduel and Siciliano's transverse sections, that the pleural fluid, whether its amount be small or large, would gravitate to the bottom of the loose pleural sac and cause its closer and more extensive adaptation to the vertebræ. These observers have been able to trace a slight shifting of the long axis of the aorta under stress of large accumulations; and they warn us of the danger the vessel might run if a left Grocco's triangle were to be aspirated by mistake.

Paravertebral in its site, Grocco's triangle is therefore in my opinion *vertebral* in its mode of production and is not due, as assumed by Ferrannini, to pulmonary condensation or displaced viscera. It is merely another instance of fluid acting as a mute (as in the production of the "lower dorsal dull patch") and of that pleximetric function of the vertebræ in conducting to the surface amplified or diminished vibrations to which I have for some years called attention. In this case the mute is applied over a portion of the circumference of the vertebræ and the damped vibrations are conveyed to the surface by the compound pleximeter made up of the vertebral spines and transverse processes and of the heads of the ribs. Metaphorically speaking, the dulled spine casts its shadow into the resonant chest; and its shadow grows downwards in proportion to the increasing surface of its contact with the dull fluid which takes the place of dry resonant lung.

This view is strikingly confirmed by my latest observation, made since writing this paper, in a case of pyuria and right lumbar abscess. The presence of a low but rather broad Grocco's triangle in the usual situation led me to diagnose also an empyema as a complication. But no pus was found in the chest, and the triangular dulness vanished as soon as Sir William Bennett's incision emptied the lumbar abscess. The case is valuable as showing that a paravertebral triangle of dulness may be set up at the base of the thorax by a collection of fluid below the diaphragm.—*The Lancet*, July 22, 1905.

THE DIGESTIVE AND OTHER ACTIONS OF APPLES, PEARS, CHERRIES, STRAWBERRIES, ETC.

By J. Gordon Sharp, M. D. Edin.

The value of the soft fruits as an adjunct to the more solid articles of diet has for long been recognised. The salts which they contain have been regarded as useful in building up the tissues by supplying them in the proper combination required by these tissues, while the succulent and indigestible fibrous material has been recognised as a salutary irritating agent to the gut in persons inclined to constipation. So far good, but the succulent fruits possess other properties not so often appreciated but yet as important as those with which we are already so familiar. The first property may be stated as follows. The organic acids contained in fruit unite with the iron of the more solid foodstuffs to form malates, citrates, &c., and these malates, citrates, &c., are acted upon by the digestive juices low down in the gut, where the iron becomes soluble and active. The great advantage is that the iron in this form is non-irritating. As is well-known, much of the iron of our food is lost as iron because it passes out of the gut unused, and unused because it is insoluble. This matters little if the hæmoglobin standard is maintained but in anæmia it is a very important point. Here a suitable dietary made up of proteid and a reasonable supply of fruit may "cure" the condition. As I have already said, the acids of the fruit "fix" the iron contained in the proteid forming organic iron salts which are broken up lower down in the alimentary tract and can be employed by the blood tissue. I know it is denied that the organic preparations of iron are of service in anæmia but from this view I dissent because I have again and again proved its fallacy.

The second property possessed by many of the succulent fruits depends on the presence of a ferment or ferments. I do not mean the ferment common to all living tissue, animal as well as vegetable, such a ferment as will split up glucosides, but I mean rather a series of ferments analogous to those found in the pancreas. We have many familiar examples of the operations of the ferment common to vegetable and animal substances. Tincture of kino when kept from one to two years shows signs of gelatinising and this has been proved to be due to the action of a ferment which is present in the gum kino and the action of which is only developed at the end of a lengthened period. Tincture of digitalis at the end of two years begins to lose its efficacy and this loss is due to the glucosides being split up by a ferment. Another example we find in the bitter almond. Ferment and glucoside lie side by side and remain inactive in the dry state but as soon as water is added the ferment becomes active and splits up the glucoside amygdalin into the well-known aldehyde and hydrocyanic acid. As yet another example of ferment action we turn to the animal tissues and note that when the proteid compounds of silver or other metal are brought into contact with the discharges from the eye or from an open wound the compound is broken up. These are all instances of ferments common to all living tissues and possessing no special action, but my chief purpose in the present paper is to call attention to ferments resembling pancreatine in the animal and papaine or bromeline in the vegetable kingdom. I wish to show that many common fruits contain ferments which play the part of papaine and bromeline (the ferment of pineapple) and that they can digest both egg and serum albumin to some limited extent. The following experiments undertaken to prove or disprove the presence of digestive ferments will indicate the drift of my argument.

I.—THE ACTION OF STRAWBERRIES ON ALBUMINS.

The action of the fresh fruit on coagulated egg albumin.—If fresh ripe strawberries are cut into thin slices and spread in double layers over the bottom of a thin glass dish and on the top of this is placed a thin layer of rubbed-up coagulated egg albumin, and on the top of this another double layer of sliced strawberry, the albumin is sandwiched between layers of strawberry and so is continually moistened by the juice of the fruit. Digestion slowly takes place at the end of eight hours' exposure at summer heat. Evidence of digestion of the albumin is obtained in the following manner. The mass of egg albumin and strawberry is mixed with cold water, stirred up, and the whole is filtered twice through paper when a clear filtrate is obtained. To this filtrate ammonium sulphate is added in excess and a dense precipitate falls and on examination it is found to be a proteid, probably an albumose. Compared with this, similar weights of strawberry and albumin examined without being subjected to digestion yielded very sparing precipitates.

The action of strawberry juice on serum albumin.—In this experiment small masses of coagulated serum albumin (prepared from fresh meat) were placed between treble layers of sliced strawberry and exposed as already detailed in the egg albumin experiments. At the end of eight hours the masses of albumin were found to be softened and eroded all around the outside surface. A watery solution of this serum albumin and strawberry compound was dialysed through parchment and the dialysate on being tested for proteid gave a decided rose pink with copper sulphate and caustic potash. In this and the other experiments no qualitative analyses of the particular proteid found were made but one may say that the mere fact of being able to pass through parchment was alone proof of the presence of a high albumose and consequently of considerable digestive activity in the strawberry juice.

II.—The Action of Ripe Cherries on Boiled Egg Albumin.

If ripe cherries are split open and the surface of each cherry is covered with a thin layer of coagulated egg albumin that has been rubbed up into a fine pulp and each cherry is again closed and laid in a thin glass dish and protected from dust and then exposed to summer heat for eight hours a considerable degree of digestion is found to have taken place. At the end of this period if these prepared cherries be treated with cold water and the whole then filtered twice through paper the filtrate will, with excess of ammonium sulphate, throw down a very large precipitate of proteid. In a control experiment a like amount of plain egg white and cherries gave a sparing precipitate.

Serum albumin exposed in the same way to split cherries shows rather less sign of digestion than in the egg-white experiments. It should be rather the other way, for serum albumin is generally easier of digestion than egg albumin. Comparing white cherries with black cherries, the former are more active than the latter.

The ferment of ripe cherries.—If the pulp of fresh cherries be extracted with cold water and filtered there is obtained a thick fluid containing proteid material and associated with it the ferment of the cherry. To obtain the preparation in a dry state the fluid is poured into great excess absolute alcohol and set aside for two months, when the proteid becomes slowly coagulated and it can be collected on a filter and dried rapidly at a low temperature to avoid destruction of the ferment. I have prepared it in this manner and have found it active at the end of two years' time, and its property of splitting up glucosides could be readily demonstrated when a small quantity of the dried preparation was placed in a wide-mouthed bottle along with a teaspoonful of cold water and five grains of amygdalin and the whole set aside at a temperature of 76° F. (24° C.) for from six to eight hours. In time the ferment acts on the glucoside amygdalin whereby it is broken up into oil of bitter almonds (detected by its odour) and hydrocyanic acid. The latter is readily detected if a glass plate with a drop of clear nitrate of silver solution on its inside surface be employed as a cover to the wide-mouthed bottle. As soon as the acid appears in the bottle its vapour rises and acts on the transparent nitrate of silver and changes it into milky cyanide of silver.

The evidence of the digestive action of the dry extract can also be elicited by placing a small quantity of it in a 0·2 per cent. hydrochloric acid solution, adding a small amount of rubbed-up egg white, and keeping the mixture at a warm temperature for eight hours with occasional shaking. The proofs of digestive actions were (1) that when the whole mass was placed on a parchment dialyser the clear fluid which came through gave a pink reaction with a weak solution of sulphate of copper in caustic potass; and (2) the further proof was that the clear dialysate on being thrown into alcohol deposited albumose or peptone or both. The presence of the ferment can also be detected in the fresh cherries by splitting up the ripe fruit and speading over the cut surface a thin layer of amygdalin and leaving it for a few hours at a temperature of 76° F. (24° C.) when the bitter almond odour develops and the presence of hydrocyanic acid is revealed by the silver nitrate test.

III.—THE ACTION OF ORANGE JUICE ON PROTEID.

Orange juice, freed from all admixture of rind, has a slight digestive action on coagulated egg white and it can be proved in the manner I have already mentioned. If amygdalin be added to the fresh juice the bitter almond odour soon develops. The amount of ferment is perhaps greatest when the fruit is at its ripest.

IV.—THE ACTION OF PEAR JUICE ON COAGULATED FIBRIN.

In this experiment ripe pears were cut open and the cut surfaces covered with a thin layer of coagulated blood fibrin and then closed again and exposed at summer heat in a thin glass vessel for eight hours. The clot gradually became softened and finally quite dissolved. The addition of 0·2 per cent. hydrochloric acid to the juice did not help but rather retarded the digestive action of the pears.

V.—THE JUICE OF RIPE APPLES.

The juice of ripe home-grown apples acts much in the same way but less powerfully than pear juice. This part of the subject naturally leads to the consideration of tinned fruits and at once I may say that all tinned fruits are inert as digestives. The prolonged high temperature necessary to their preservation destroys the ferments. On the other hand, baking or stewing fruit does not entirely destroy the ferment unless the heat be very prolonged. A test as to whether or not a cooked fruit is inert is to be found in the presence or absence of the original flavour of the fruit. If a cooked fruit has lost all its flavour then one may say it has lost all its ferment.

PRACTICAL APPLICATION OF THE FOREGOING EXPERIMENTS AND OBSERVATIONS.

To obtain most benefit from the succulent fruits they should be eaten at the end of the chief meal. This is a general rule to which, however, there are some exceptions. Bananas, for example, perhaps have little digestive activity, and besides they are as much a food as a fruit. They may be eaten with any meal and to many people they are most acceptable when they are cut in thin slices and eaten with bread-and-butter. When not quite ripe they may be placed in a hot oven till they are soft. In the same manner apples may be baked in an oven or roasted in front of the fire. Either of these methods preserves the flavour of the fruit.

Stewed fruit is often recommended as a stimulant to the lethargic gut in constipation but in nine cases out of ten no directions are given for its proper use or if directions are given they are of a character little likely to benefit the condition which they are intended to relieve. Six or eight stewed prunes eaten half an hour before breakfast often prove laxative later in the day, while double the number eaten with or after a meal may have no effect as an aperient. Stewed figs or apples may also be eaten before breakfast in cases where the stomach can tolerate them and where the desire is to get a laxative effect with the greatest degree of certainty.

In our climate we cannot enjoy the luxury of ripe oranges but we can obtain a good substitute by eating the fruit in the shape of a salad. If the orange is peeled and then cut into thin slices so that the juice is set free and castor sugar be strewn over the cut slices it is not unlike pineapple and as an aid to digestion is highly efficacious. Many fruits if eaten when the stomach is comparatively empty give rise to acidity. Grapes are especially harmful in this direction and it is well to bear in mind that grapes should be eaten at the end of the chief meal of the day.

By an intelligent recommendation of the proper use of fruit in our dietary the medical man can do much to counteract the evil influence of those who teach the entire use of fruit as an article of diet. Every medical man now and then comes across patients who have dined for weeks on half a dozen bananas, a pound of strawberries, a pound of uncooked apples, or a pound of grapes or other fruit. Strange to say, it is often the poor creature who is run down who takes to this fruit craze and, as might be expected, the injudicious feeding makes his condition worse. The importance of many of these points I am afraid is not sufficiently appreciated by medical men. Patients now-a-days expect us to give them hints not only on what they should eat and what they should avoid, but likewise as to the manner in which their food should be cooked and eaten. We shall do well if we use wisely the new power given into our hands.—*The Lancet*—July 22, 1905.

THE TEACHING OF HYGIENE IN INDIA.

When we consider the high pitch of civilisation which has been reached by some of the ancient races of man it is not to be wondered at that they should have framed for themselves codes of sanitary laws but it is somewhat surprising that these codes should have contained rules so nearly analogous to those which are the result of modern scientific knowledge. The Bible has familiarised us with the sanitary code of the Hebrews and archæological research has shown us that other Eastern nations were no less advanced in the knowledge of hygiene and sanitation. In the latter part of the eighteenth century and the beginning of the nineteenth some accurate knowledge of the Aryan people of India was made accessible to us by the labours of such men as Sir William Jones and Henry Thomas Colebrook and from this time, both in this country and abroad, considerable attention has been paid to the literature of this ancient people. Among a people who had reached a high degree of civilisation and in a country where the climatic conditions were particularly favourable to the propagation and the spread of diseases disseminated both by air and polluted water, we find, as might be expected, that the priestly class, who were the learned men of the time, had laid down rules for the avoidance of disease and the preservation of health. Had the Laws of Manu been fully understood and applied by the later inhabitants of India there can be no doubt that that country would have been less afflicted than it is by many dread diseases—cholera and plague for example. But in India, as in many other country, the wise regulations laid down by the priestly caste for the guidance both of mind and body have been perverted and their original meaning has been forgotten, so that ceremonies which formerly had a meaning and a reason are now become for the mass of the people such that they but "confound and darken" counsel. Even now if the natives could be made to understand the real meaning of the ceremonies which they go through with such superstitious reverence not only would the more ignorant benefit but also the educated people of their own and other nationalities who occupy the country with them.

There are already in existence many societies the object of which is to harmonise the philosophy of the East with the science of the West, a task which, for the present at any rate, seems to be an impossible one; but there is another movement on foot and one from which, if carried out with discretion, great good may accrue—namely, the attempt to educate the less intelligent of the natives of India in the practice and principles of Western hygiene and sanitation by showing them the relation between the modern science and the rules laid down in their shastras. From the office of an Indian periodical, called the *Arya*, a monthly magazine devoted to philosophical literature and science, published in Black Town, Madras, we have received three little pamphlets, reprints from the magazine, the first of which treats of water and health by Dr. R. S. Chandrasekhar of Madras Medical College, showing that the

Indian sacred writings contain many passages in strict accordance with modern sanitary science, and the second by the same author dealing with personal cleanliness on similar lines. The third pamphlet, "Notes on Ancient Sanitation," written by Colonel W. G. KING, C. I. E., I. M. S., Sanitary Commissioner of Madras, shows how the methods of purification adopted by the religious leaders of the ancient Hindoos may be made to harmonise with the teachings of modern science, though the author rightly points out that it is well to remember that these teachings were not meant for municipalities of modern times but for individuals who were scattered throughout the land living agricultural or pastoral lives of much simplicity and by no means grouped in well-populated centres, as at the present day. It is remarkable how these methods utilised natural processes recognised by modern science as due to chemical combination and microbial action. The rules against the practice of breaking clods of earth and tearing grass with the finger-nails might well at the present day be directed against the propagation of the ankylostomum; the direction to the householder to give food very hot would tend to kill microbes and to mitigate the results of contamination by exposure to the air; and the prohibition against the use of food that had been touched by the human foot or by the beak or the feet of birds would help to prevent contamination by disease germs. Perhaps the most remarkable testimony to the wisdom of the old Aryan teachers is to be found in their rules with regard to the use of water. The test of smell, colour, and taste seems to have been recognised early, as was also the possibility of contamination if collected in an inhabited area. The directions against answering to the calls of nature on the banks of, or in, rivers and the ruling "let him not throw urine or fæces into the water, nor saliva nor clothes defiled by impure substances, nor any other impurity, nor blood, nor poisonous things," though disregarded by many of the lower class of Hindoos of the present day, show that their ancestors were possessed of wisdom. No better example of the way in which this ancient wisdom has been perverted by the ignorance of the less educated natives can, perhaps, be given than their belief in the purity of running water. The shastras teach that a river is purified by its flow, a truth which is in accord with modern science, but many a Hindoo superstitiously holding this belief without understanding its meaning will defile water in the grossest manner and not hesitate to use it for domestic purposes, notwithstanding the fact that just above the site of withdrawal the accumulated filth of all classes and castes is being discharged! Colonel KING's pamphlet is full of interest even to the general reader but we have not space to refer to it further except to say that he deals with the Mahomedan writings as well as with those of the Hindoos.

It should not, then, be difficult to teach the less intelligent of the present-day inhabitants of India that the ancient Hindoos and the early Mahomedans were well acquainted with sanitary and hygienic knowledge which has been perverted by their descendants and to show the absurdity of regarding our present teaching as the offspring of a Western craving for the introduction of new fads. Quotations from the Vedas and the Laws of Manu have been, we believe, reprinted and used with good effect during the recent epidemic of plague. If Colonel KING and those who are working to the same end can convince the less intelligent natives, quote the closing words of the pamphlet, that "it is worth remembering.......when plague surrounds us......that the people who will carry sanitation into their homes and as good citizens uphold it in public must reap health and wealth, and that the penalty of neglect of sanitation is financial ruin and death as proved by the history of every people who have had the temerity to ignore it"—if he and they can do this they will give a priceless blessing to India and the reward will be great.

The Lancet.—July 22, 1905.

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Acknowledgments.

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NEED OF AN INDIAN HOMŒOPATHIC PHARMACOLOGY.

Pharmacology deals with the science or knowledge of drugs as well as the art of preparing medicines. It comprehends a certain knowledge of materia medica and pharmacopœia. India, the land of so many drugs of inorganic, organic and vegetable kingdoms, should have a pharmacology of its own. Allopathy and homœopathy may have their separate books. According to the foundation of the homœopathic preparations, the whole principle is based on an uniform standard of scientific graduation. The metric system of tenths and hundredths is observed for the preparation of attenuations. The vegetable tinctures are derived from fresh roots, leaves and flowers. Maximum saturation is the essential principle. The orthodox system of medicinal preparation is not only vitiated by its incongruous compounds, but mostly dry vegetables are used to facilitate the ready method of use. For commercial gain the scientific basis is destroyed. It is an open truth that tinctures from fresh substances contain medicinal power which can not be found in tinctures prepared from dried vegetables. The volatile principles are lost, and even the fixed principles are wasted to a certain extent. This mode of preparation is nothing but arbitrary. The orthodox system to be relevant in its application should follow the homœopathic basis.

The time taken for preparation of homœopathic vegetable tinctures is open to serious objection. No tincture can attain the point of maximum saturation unless the vegetable is reduced to small sizes. Roots, stems, leaves and flowers want to be cut in small pieces before being immersed in rectified spirit. The best direction for preparation will be found in the Pharmacopœia Homœopathica Polyglotta, by Dr. Willmar Schwabe of Leipzig. The period for getting maximum saturation can not be obtained in a week or fortnight. Our series of experiments have demonstrated the fact that no good tincture can be obtained unless the vegetable products are allowed to remain in rectified spirit for one month. Though the process takes long time to arrive at the finality, yet it must be said that we should not sacrifice the best quality for commercial gain. Respectable druggists should have their own preparation according to the definite method of saturation. For this reason not only every nation but all respectable homœopathic pharmacists should prepare their standard tincture for use. If it is not be possible to prepare most of the tinctures, at first the polycrests should come to our relief. The inorganic preparations of homœopathy are used in the shape of triturations. They also follow the definite rule of decimals and centesimals. The organic substances should be prepared like the vegetables for their saturation. At present we should limit our scope to the 12th or at the most to the 30th attenuation. The higher divisions can not be undertaken without the accumulation of sufficient capital for the purpose. The attenuations above 30th having sufficient risk and responsibility in the hand-made preparation, can be utilised after due consideration. The machine-made high attenuations not only lose their uniform strength but attain quixotic power in each preparation. Therefore they are generally unsafe, unreliable and inadvisable for use. The present tendency to use high attenuations in almost all cases can not but be condemned.

When most of the diseases are amenable to treatment by low attenuations, then it is superfluous if not mischievous to administer medicines of those ultra-divisions of atoms. The cost is on the way. The recommendation to adopt homœopathy is, firstly, to avoid the danger of polypharmacy and secondly, to cure at the least expense. The high atomic divisions of medicines may serve the first purpose but not the second. With some practitioners it serves the advertisement of fashion. The orthodox school is gaining a notoriety by using new drugs for parade of knowledge. Truly speaking that irrational knowledge not based on experience is extremely dangerous to human lives. The days of Antipyrine, Antifebrine and Phenacetine in fevers are gone. Their introduction invited death. The commercial fashion created the mischief. Homœopathy of modern days is treading on the same ground. The adoption of a fashion without examination of its consequences is no doubt a reprehensible practice. Where Ipecac. can cure slight cough and bronchitis, there an unknown drug is prescribed costing the patient four times the price of Ipecac. and without effect. Homœopathy essentially wants the use of those drugs which have been proved. It is a rank quackery to use un-proved drugs at the very first prescription. There may be a semblance of defence for the use of unproved drugs when they are used after the failure of many proved medicines. The practitioner who mostly use such unproved drugs boasts of his queer knowledge. It is rather ignorance which leads to its administration. In the same way, the frequent use of high attenuations signifies the creation of a distinct class of practitioners, who in their calm moments may think of their adventurous achievements. We have not observed any pulseless case of cholera regaining the arterial vibrations at the wrist by the use of high dilutions from 200th and above and yet it has become the fashion to administer them to that kind of patients whose death may be said to be imminent. Stories are running from one end of Calcutta to the other of the cure of cases by high dilutions. It has not come to our lot to see the curative effect of any acute dangerous disease from that ultra-division of atoms.

High dilutions have made another usurpation, that is of our marks of difference between decimals and centesimals. We use D for decimal and generally nothing is put against any attenuation which is centesimal. The common form of homœopathic prescription without D or C may mean decimal or centesimal. 6th may mean decimal or centesimal. All attenuations are liable to misinterpretation without any expressed sign. So it has become necessary to have a direction either D or C. The high dilutions on the other hand are used as C for their hundredth, D for five hundredth, and M for thousandth. Therefore the safe guide to adopt is to write dec. for decimal and cent. for centesimal dilutions, leaving the high dilutions to adopt C, D, or M.

Coming to our subject, it may be questioned, can we get those vegetables which are used in homoeopathy as our produce in India? We can safely assert that many of them are procurable. Objection may be raised as to the quality of the plant though they are identical, for their birth in two different places. As far as we can judge, the difference may be so small that it would be safe to put back the objection. As an example, it is known that our Quinine is in no way inferior to the product of the Peruvian bark in its own original habitation. On the contrary, it has been asserted by some, that Indian Quinine is superior to the foreign product in its power. Then there is another obstruction of a technical character, that is, the proving of the drugs from the species produced in their original home. The answer is that the Indian drugs do not prevent their proving on the Indian nation. The identity of plants being established, it is highly desirable that fresh pathogenetic actions of the Indian nature will lead to better use in Indian diseases and constitutions. If we want to be a distinct nation then we should firmly strive for industrial development not depending for our daily requisites on the supply of other nations. The vast expanse, the charming fields and the superabundant luxurious vegetations of India having the advantage of many temperatures and altitudes, look to its people for the manufacture of its raw products. It is a sin bordering on criminality that our grand resources would die away, and foreign medicines should furnish the weapons to save ourselves from the ravages of diseases. The art of preparing medicinal products being so simple, it requires an ordinary effort to save our fifty lacs of rupees, drained away in foreign countries.

It will be interesting to take a brief survey of the Homœopathic medicines to know whether they are available in India. In some instances the exact species are available; for a few others an allied species may take the place of the indicated vegetable. It should be noted that in this occurrence a fresh proving will render the necessary help to the use of the medicine. As for the introduction of new drugs, provings are necessary for their inclusion in the Indian Homœopathic Materia medica. Any suggestion for their use as in Hale's New Remedies may help us to a certain extent but to be most useful pathogenetic indications are necessary. Depending on these facts the following list for a future Indian Homœopathic Pharmacology may be the guiding object. At first we take into consideration the vgetables, for the inorganic elements and their compounds are common properties of all nations.

1. *Abelmoschus* is otherwise known as Hibiscus abelmoschus. It is Musk seed for having its odour like musk. The seeds are native of India and are properly known as Misk-ki-bia or Kasturi dana differentiating from Misk dana or true musk. Watt in his Dictionary of Economic Products of India calls it Misk dana without making the proper difference. It is a tropical vegetable.

2. *Abies canadensis* is not available in India. Its allied species are Abies Webbiana, A. Smithiana, and A. dumosa, all of them having their habitat in the Himalayas. A. Webbiana is the Himalayan silver fir, A. Smithiana is the Himalayan spruce and A. dumosa is the Indian hemlock spruce. Abies canadensis has synonyms Pinus canadensis or hemlock spruce. The exudation is canada pitch. Its best allied species is A. dumosa or the Indian hemlock spruce and has its

habitat the north-east of Kumaon, Nepal and Sikkim. Kumaon is its principal habitation.

3. *Abies nigra* or the black or double spruce comes from the northern part of North America. Of this variety of spruce the gummy exudation is made, into tincture. The gum is available in the Indian market.

4. *Abrotanum* or Artemisia abrotanum comes from southern Europe. It is not found in India but can be had in northern Asia, north of India.

5. *Absinthium* is the common Worm wood, and has its native forest in Europe and Asia, but not in India.

6. *Acalypha Indica* is our Muktajhuri . or Muktabarshi, mostly found on the old and dilapidated walls or the road-sides as weed. Watt doubts its Sanskrit name as Aritta munjari. In Vaidyak Sabdasindhu no mention is made of Muktajhuri, Muktabarshi or Aritta munjari. It seems to be a weed of the hot regions mostly growing during the rains and common in Bengal.

7. *Acanthus mollis* comes from south Europe. We have no A. mollis but A. illicifolium is a common plant of the Bengal swamps. Watt puts the Bengali name of A. illicifolium as Harcuch Kanta and the Sanskrit Harikusa. These names are wanting in Vaidyak Sabdasindhu.

8. *Achillea eupatorium* or A. Filipendulina has habitat in the Philipine islands. We have A. millefolium but A. eupatorium is wanting in India. A. millefolium which is simply known as Millefolium, will come for consideration in its proper place.

9. *Aconitum anthora* is available in Europe, Asia Minor and other places except India. A. anthora has not been used to that extent as its omission will prove a great loss to our materia medica and pharmacology.

10. *Aconitum cammarum* is available as fresh roots in the markets of the Panjab, principally Lahore and Simla. The plant generally remains unidentified in India. We are not without expectation that it will be plentifully found in the western Himalayas.

11. *Aconitum ferox* is principally used in India instead of A. napellus. Its habitat is in the eastern Himalayas and the supply to the Calcutta market comes from the eastern Nepal. In Sanskrit it is known as Vatsyanag and in Hindi and Bengali it is termed Vachnag. The appellation of Vatsyanag indicates that it is a smaller species of serpent poison. The other common name is Mitha Jahar which is applied to all species of aconite. Dr. Watt locates its habitation in the "Temperate sub-alpine Himalaya, from Sikkim to Garhwal." The difference with A. napellus is "chiefly in the less divided leaves, denser flowered racemes, and shorter beak to the helmet." Dr. Watt has given its another name *Singyi* or *Singya bis* or the *Sringi* poison of the Sanskrit authors. In Vaidyak Sabdasindhu A. ferox stands for Vatsyanag. *Sringi* does not mean any variety of Aconite. It is the *Sringi* or *Sringi* fish of Bengal. There is another Sanskrit word *Sringika* which means *Senko* or Arsenic. It is evident that *Sringika* can not stand for *Vatsyanag*. The root of A. ferox can be confounded with that of of A. lycoctonum. For differentiation the following note occurs in Watt's Economic Products. "The specific identity of these two forms appears open to grave doubt, however, and, indeed, the chemical nature, structural characteristics and the association with Lahore would seem to suggest that the white spongy root was much more likely to be obtained from *A. lycoctonum*, a species plentiful on the north-west Himalaya from Kumaon to Kashmir than from *A. Ferox*. The latter is the characteristic species of the eastern Himalaya, and nowhere occurs west of Garhwal. Being the root of a temperate plant, the 'Lahore *Bachnab*' most probably comes from Kashmir and the surrounding mountains (where *A. Lycoctonum* at altitude 7,000 to 10,000 feet, and *A. Napellus* at 10,000 to 15,000 are very plentiful); indeed the latter species is one of the commonest plants on all the higher Himalayas from Kumaon westward, but is not met with in the region of *A. Ferox*, the eastern Himalaya."

Confusion is not possible in mixing A. ferox with A. napellus. A. napellus can be mixed with A. lycoctonum, but the market at Simla supplies the pure species of A. napellus when ***Mitha***

Jahar is asked for. We have procured the entire A. ferox plant from a friend at Darjiling who was able to supply them from the road-side lands of certain parts of the place. They came as fresh and have yielded beautiful tincture. The roots and stems were not at all spongy and difficult to make small sections.

12. *Aconitum lycoctonum* is mentioned in connection with A. ferox. It is generally sold in the markets at Lahore and therefore it is called Lahori Bachnag. The supply seems to come from Kashmir and Garhwal. Though coming from the same countries where A. napellus can be found yet there is great difference between the two in their botanical structure. A. lycoctonum is higher than A. napellus. The former is generally 3 to 6 feet while the latter is not more than 2 to 4 feet in height. The stems of the lycoctonum plant are glabrous whereas those of napellus furnish with smooth green and hairy nature. The racemes in the lycoctonum are long branched and tomentose ; those of napellus are simple, few or many flowered. The flowers of the former are pale yellow or dull purple, those of the latter are bright blue or present dull greenish hue.

The difference of A. napellus with A. ferox is chiefly due to the last having "less divided leaves, denser flowered racemes and shorter beak to the helmet." A. lycoctonum forms a species of Japanese aconite.

Aconitum napellus is spoken of in Kashmir Ban-bal-nag or the young serpent of woody structure. Its habitat is on a higher range than that of A. lycoctonum, in the Himalayas. It has a wider distribution in the world than any of the aconites, being found in the Temperate and Arctic Europe, Asia and America.

It has many varieties (1) *Napellus proper* which is poisonous, (2) *Rigidum* which is also poisonous. (3) Multifidum, eaten by Bhotias. (4) Rotundifolium eaten by Bhotias. The Subdivision into poisonous and non-poisonous is the most interesting feature of A. napellus. The poisonous plants are required for pharmacological experiments whereas the non-poisonous varieties are either botanical curiosities or form food stuffs.

The use of fresh aconite roots seems to us an example why fresh roots should be used instead of the dried things. "In the fresh state the root has the odour of the radish, a peculiarity which disappears on drying." We have already observed that A. napellus roots in fresh state are found in the market at Simla and they have been secured by us for identification. The position taken by A. napellus in the homœopathic system of medicine is known to all practitioners of the new school. A. ferox has a future dignity which is not prized at the present day. Perhaps, there will be keen contention for priority of position between the two. The pathogenetic analysis of A. napellus is replete with interesting facts. That of A. ferox remains mostly unknown. It is our duty to make a difference between them in the pathogenetic and clinical aspects.

Besides these, there are other varieties of Indian aconite than those which have already been mentioned. The most prominent among them are, *A. heterophyllum* generally called in this country by the name of Atis. Its principal uses are antipyretic and anti-periodic. In slow and long standing fevers it can be used with efficacy in one or two gr. doses. *A. luridum* can not boast of any good medicinal use and A. palmatum also stands in the same light.

Actaea racemosa or Cimicifuga racemosa is found in Canada, Georgia and Western States of America. A. racemosa is unknown in India. The Indian species is *Cimicifuga fœtida*. Dr. Watt remarks: "There seems every reason to expect that the Indian species which differs from C. racemosa only very slightly will be found to possess all its medicinal virtues." *Actaea spicata* or the Baneberry is found in the temperate Himalaya from Bhutan to Hazara in India, as well as in North Asia, Europe and North America. "Baneberry root is largely exported into Europe and used to adulterate the root of *Helleborus niger* but the former may readily be distinguished on section by the presence of radiating medullary bands while *Hellebore* has an entire or undivided substance."

COMMON DISEASES AND THEIR TREATMENT.

XV.

(Continued from p. 406.)

Polygonum comprehends two species, *viz.*, P. acre, P. hydropiper or Persicaria urens. The first is found in North America and the second in Britain. Polygonum acre has been proved but not Polygonum hydropiper. It produced pulsating, wandering, flashing pains, and inflammation, smarting, raw feeling of Schneiderian membrane of the nose. Red inflamed appearance of nostrils with swollen sensation was also observed. It has also other symptoms of inflammation as: Aching in loins with pain around hip joint; tearing and drawing in loins on exposure to cold, followed by lameness and soreness; swelling of legs and feet; chronic erysipelatous inflammation, and as galvanic shock through lower extremities. It seems that the pains are more nervous than inflammatory in the extremities but more inflammatory than nervous in the nose. The affection of the skin is a prominent character and chronic erysipelatous inflammations have been cured by it. The nervous sensations are electric in their nature and the feeling of galvanic shock through lower extremities is like that produced by Boa vipera or or Russel's viper.

Populus candicans presents symptoms of, bruised, sore swollen, inflamed pain, with burning; whole body feels swollen, bruised, lame, sore and painful, exhausted, clumsy, stinging, restless irritation *as if an eruptive fever* would *come to the surface*, burning irritation of eyes, nose, skin, mucous membrane of mouth, throat and air passages and oppression of respiration and circulation; catarrhal feverish state of mucous surfaces; pulmonic, cardiac and capillary circulation oppressed, feels as if death must result, as if there must be fatal organic lesions; stiffness of muscles, tendons, ligaments, with lameness and with dry feeling in cartilages as if lame; weakness. On the skin its application produces large blisters which hang down like bags of water. It is widely used in healing wounds, open sores and eruptions. The action of the medicine being not uniform in all cases, blisters are rarely produced. In fact, it acts generally like Arnica and especially like Cantharis. The recommendation of its topical application is not safe in all cases.

Prunus spinosa causes *stiffness of all parts of back and small of back as if he had been injured;* stiffness in back and loins, as if caused by a strain; pressure on shoulder extending to deltoid muscle preventing one from raising arm; soreness of axillary glands, tension, wrenching pains and paralytic sensation in various parts of arms and hands; pain as if bruise would form in wrist; *sensation as if right thumb has been sprained and hindering writing;* wrenching pains in knees and feet; pain as if from sprain in ankle; shootings in muscles; sprained pain in ankle below outer malleolus; *spraining pains and pains which take away breath.*

Clarke cites the following case: " A remarkable symptom is: "Breath always seems to remain sticking in pit of stomach." This symptom with 'pain as if sprained in left ankle' led Lippe to make a remarkable cure in this case. A young lady, 16, jumped from a carriage whilst the horse was running away and sprained her ankle. Left ankle and face much swollen. As swelling abated, breathing became rapid; great oppression with constantly recurring desire to take a long breath; *felt as if air inhaled did not reach pit of stomach,* and till she could force air so far down, had to yield and try to take a deep inspiration."

In another kind of anxiety for deep breathing Prunus spinosa has been found serviceable. *Tightness in upper part of chest; heaviness and oppression of chest; heaviness in chest obliging deep breathing;* in lower part of chest with *anxiety there often compelling deep breathing* are the symptoms which require its help. With regard to them Clarke remarks: "The tightness, stitches, and sticking pains in chest have marked *Prun. spi.* as a remedy in many cases of neuralgic pains with or following herpes zoster." It has another symptom of like nature sighing as if climbing a steep mountain. The resemblance with spraining effects is manifest in thumb, ankle and big toe. In actual spraining of these part prunus spinosa can be administered with effect. In pain of the shoulder-joint due to overlifting it should be used.

All these pathogenetic characteristics have given Prunus spinosa high place in sprain and overlifting which are not generally taken to account. Its proper place would be after Arnica and Rhus tox. or it may be used when the peculiar kinds of breathing difficulties appear in any injury from straining.

Psorinum is the chief of our nosodes. Allen according to Hering defines it thus: "A tincture was made of the pus from mature pustules on the hands of a healthy negro who was probably afflicted with the itch." Clarke says: "The sero-purulent matter of a scabies vesicle was used by Hahnemann. The product of 'Psora sicca' (epidermoid efflorescence of Pityriasis) by Gross. The salt from a product of Psora by Hering." The noticeable feature is the difference of the source from which the medicine is prepared. Hahnemann used the pus from a mature pustule. Whether it was itch or any other form of purulent pustule remains unknown. Gross used the epidermis of pityriasis. At any rate it is plain, that they are not the same thing. The one is pus and the other epidermis. The former is a purulent matter containing bacilli different from those of the epidermal scales. The pathogenetic results can not be the same. The possible conclusion is that we can neglect the statement of Gross and take the results of Hahnemann. Hering appears to have taken the medicine from an indefinite source. A further proving may show the difference between them.

Psorinum has the following symptoms; *Looks pale, exhausted and thin, his clothing is too large for him;* Right side of body is full of burning pains; soreness; *stormy weather affects him,* he felt restless a few days beforehand; *weakness, after riding in a wagon or from little labour;* can not bear walking in the sun; *glands of neck swollen and on touch bruised pain extending to head;* tensive pain in nape; boring in dorsal vertebrae; pain in loins; weakness of joints as if they would not hold together swelling and tension of back of head as if sprained; right side of occiput as if dislocated; hip joint as if ulcerated; hands and feet as if broken.

Allen remarks: "Frequently indicated for persistent weakness after debilitating diseases, depressed in mind and body. General anaemia, aversion of food, with foul taste." Psorinum is a medicine for chronic weakness and exhaustion due to exhausting diseases, as chronic offensive diarrhœa, any kind of offensive unhealthy discharge occurring for a long time, and low chronic inflammation. Clarke further writes: "Whole body painful, easily sprained and injured. Great sensitiveness to cold air, change, storms; to sun; restless for days before thunderstorm."

Pulsatilla is one of our all pervading medicines. It has the power to reduce inflammation primarily of veins and secondarily of arteries. Hughes remarks: "The veins seem to lose their vital resistance under the action of Pulsatilla; so that varicosis readily occurs, especially in the rectum." According to Hempel and Arndt, we find: "*Varicose Ulcers*—The burning stinging pains which patients sometimes experience in varicose ulcers, are often relieved by Pulsatilla. Varicose, readily bleeding ulcers, have been healed by pulsatilla. Its power to produce venous congestion, renders it valuable in the treatment of such sore. Hence in *Varicose Veins,* with which women are so often troubled in consequence of frequent pregnancies, pulsatilla proves useful;

"By applying the bruised root to a rheumatic limb, pulsatilla has caused inflammation and gangrene of the parts. It seems to possess a peculiar power of disorganising veins and embarrassing the venous circulation. In *Gangrena Senilis* with coldness of the limbs, and pattial suspension of the venous circulation we therefore give pulsatilla with occasional advantage."

The following opinion of Teste has seen recorded by Clarke: "Teste himself has given a very luminous account of the remedy. He puts it at the head of a group with *Silic.*, *Calc.*, *Hep.* as its chief members (*Graph.*, *Phos.*, in less degree, with *Fer.*, *Cham.*, and *Gadus* as analogues). These drugs act principally, says Teste, on the vascular apparatus. All the symptoms which they have in common depend upon a small number of primordial symptoms (*e.g.*, impeded respiration, engorgement of air passages, irregular beating of heart) indicating vascular disturbance. Hence arise—(1) Throbbings here and there synchronous with the pulse. (2) Blackness and diminished fluidity of the blood. (3) Swelling of veins, capillary engorgement, a sort of ill-conditioned plethora. (4) Diminished vital heat and action. (5) Congestion of blood to head and engorgement of the sinuses. (6) Sensation of heaviness and fulness of brain; and (7) the same kind of pain sometimes with apoplectic shocks, in centre or (more usually) on right side of brain. (8) Vertigo and cloudiness as in complete apoplexy, especially *when atmospheric pressure is low*, as at the approach of storms, and on heights."

Venous stasis producing inflammation of the arterioles is a character of Pulsatilla. The result is phlebitis and congestion of arteries connecting the capillary tubes of arteries and veins. It has the following symptoms: Varicose veins, even when inflamed, especially when blue, particularly in pregnant females, feels more comfortable when walking about; sharp drawing and jerking pain in muscles, worse at night, or in bed in evening, as well as by heat of a room, better in open air, and often accompanied by numbness, paralytic weakness, or hard swelling of parts affected; tension in some of the limbs, as if tendons were too short; shifting pains which pass rapidly from one part to the other, often with swelling and redness in joints; pain as from a bruise or subcutaneous ulceration on touching parts affected; symptoms generally most violent in evening or at night before midnight, sometimes also in morning and often after a meal; symptoms are worse every second day in evening; *pain in muscles of neck with stiffness; sprained pain on motion in sacrum; pain in sacrum as if suppurating or as from a band, when lying with stiffness; pain in sacrum after sitting can scarcely rise; feeling in extremities if beaten;* bursting pain in muscles of thigh and upper arm; *pain in morning in bed worse in joints, forcing him to stretch with general heat; tearing in shoulder joint obliging him to bend arm*; *pain as if beaten in middle of humerus, extending into thumb, so that she could not use it; tensive pain in tendons on the bend of arm on moving it;* sprained pain in bones of wrist; *pain in hip joint as if dislocated; bruised sensation in bones and muscles of thigh; tearing and drawing pain in knee; bleeding* *af varicose veins of leg ; swelling of back of foot ; varicose veins of foot swell up ; foot red hot with tensive burning pain, which on standing changes to sticking ; tearing across back to heel ; foot red, inflamed and painful ; symptoms occur mostly in evening, next in succeeding hours till midnight* (Lyc, Cycl., Euphor. Valer ; Phos.) *rarely about* 4 *a. m. and still more rarely in morning ; amelioration in open air ; amelioration of pains when lying on back* (Sang., Bry., Calc c., Lyc.) ; *aggravation from lying on side.*

(To be continued.)

REVIEW.

Report on the Administration of Police of the Lower Provinces, Bengal Presidency, for the year 1904.

The most noticeable feature in the report is that 277 members of the force were convicted of offences under the Indian Penal Code. This fact does not show the good moral condition of the men employed to keep the peace of the country.

The health of the force was not good. The general prevalence of malaria is against the good condition of the whole population of the Lower Provinces. It is proposed that the Inspector General will introduce in the most unhealthy districts mosquito curtains and the systematic use of quinine. We are inclined to differ from the proposal of the Inspector General as malarious attacks never equal in its intensity for three or four years in any district. The change of intensity is a peculiarity of malaria. Further the people of the Lower Provinces are surcharged with the effects of quinine and hardly any good will result from its systematic use.

EDITOR'S NOTES.

The Physiological Action of Air in Crowded Rooms.

The Knowledge for August writes :

"It is a commonly accepted belief that the unpleasant effects produced on the human system by the air in overcrowded rooms is due to volatile products given off by the skin and lungs; but experiments made by Dr. Paul of the Breslau Hygienic Institute appear to indicate that the main cause is the retention of heat by the body. Under normal conditions heat is lost by conduction, radiation, and evaporation of moisture, as well as during respiration. The loss of heat by conduction is to a large extent prevented in crowded rooms, in which the air is usually of a relatively high temperature, and contains a high proportion of moisture, while the loss by radiation is very incomplete when the body is surrounded by others at about the same temperature. In Dr. Paul's experiments it was found that headache and all the other unpleasant symptoms could be entirely prevented by regulation of the heat, even when the air was saturated with respiration products, and contained as much as 15 per cent. of carbon dioxide; whereas without this regulation of temperature they appeared even when absolutely pure air was breathed. The retention of heat could be demonstrated objectively by the rise in temperature of the skin."

If the experiment of Dr. Paul can be accepted, it overthrows many previous experience. The decision is that it is not carbon dioxide, or the volatile products expired by the lungs is the cause of the rise of temperature in overcrowded rooms and its subsequent results. The retention of heat as in sunstroke proves the deleterious influence. Why the heat is retained remains unknown. In a crowded room the heat of the place may not be so high as the temperature of the sun when sunstroke is produced. Yet the effect is the same.

Unidentified forms of Tropical Fever.

The Public Health for September informs :

"While the etiology of malaria was obscure and the disease was ascribed to heat, moisture, etc., the occurrence of what were supposed to be irregular and abnormal forms excited no surprise; but now that its nature and causation have been satisfactorily and definitively settled, these non-malarial, *i. e.*, not parasitic cases, call for investigation. A Dutch ship's surgeon, Dr. Moritz Silberstein, describes in the *Zeitschrift für Hyg. u. Infectionskrank.* vol. 47, part iii., three outbreaks that occurred on board the same vessel in a voyage from Java homewards, having different clinical symptoms. In the first, which appeared while the vessel was still in the harbour of Tanjong Priok, near Batavia, five of the crew were attacked with febrile symptoms which lasted from 12 to 18 hours, followed by an apyretical interval or remission of two days. On the 4th day there was a sudden rise of temperature, which subsided on the 5th day, ending in a crisis. The attacks did not recur and all the patients recovered. No malarial parasite was found, but it must be admitted that such negative evidence is not conclusive. This form of fever was first described by Van der Schee in 1894. The second outbreak shortly after lasted only twenty-four hours and resembled an abortive form of influenza. There was no eruption, and examination of the blood revealed nothing. In it six other members of the crew were involved. Between two and three weeks after leaving Java a third outbreak occurred, this time among the passengers, and attacked six persons. This was distinguished by an exanthem resembling that of rötheln, but though the interval that had elapsed between the ship's departure from Batavia and the first case would suggest an incubation period, rötheln was unknown in Java, and it certainly was not measles. Blood parasites were sought in vain. These anomalous fevers, the specific and communicable nature of which is indicated by their attacking a plurality of individuals simultaneously, offer a wide field for future investigation."

The bacteriological examination of fevers does not coincide with clinical experience. In Calcutta we see types of fevers which are alike the malarious fevers of the *mafassil.* But the malarial parasites are absent in Calcutta fevers of the malarious type. The Cambridge University Commission which was invited to India has come to this conclusion.

Types of Plague Bacilli.

We are indebted to the British Medical Journal of 23rd September for the following facts :

"Dr. Klein has continued his researches on the bacteriology of plague, and adheres to the view which he expressed in last year's report that two strains of bacillus pestis are to be recognized—namely (1) the virulent "human" type, and (2) the less virulent "rat" type. These types, he maintains, differ from one another in morphological, cultural, and physiological respects, and the differences are of a definite and permanent character The bacilli of the "human" type are of a more or less cylindrical shape; in gelatine cultures the growth of the colonies is at an early stage conspicuously granular and more or less opaque in aspect; the bacilli are very virulent for the human species, and cultures of the organisms are highly virulent for rodents. The bacilli of the "rat" type, which has presumably passed through several generations in the rat, are less cylindrical than the "human"; they exhibit oval and coccus-like forms, and show a rapid tendency to undergo involution. The growth on gelatine in early phases is of conspicuous translucency and the colonies are less angular than those of the "human" type. Their action on the guinea-pig (and presumably on man) is less virulent, and by transmission in artificial cultures virulence is rapidly lost. Dr. Klein does not think that the "rat" type is merely due to an attenuation of the more virulent organism by continued residence on artificial culture media, because the "human" type retains a considerable degree of virulence through many generations of subcultures for several years, whereas the "rat" type quickly loses its virulence almost completely. Moreover, the "human" type rapidly recovers full virulence by a renewed passage through the animal body whilst the original virulence of the "rat" type, when once lost by artificial culture, cannot be regained by animal passage. Dr. Klein recognizes that these two types of bacilli have in all probability descended from a common stock. He has not, however, succeeded in converting the "rat" into the "human" type, though he has met with more success in his efforts to modify the "human" into the "rat" type. For this latter purpose he employed passage through rats which were antecedently protected by subcutaneous inoculation of Haffkine's prophylactic."

The two distinct types of bacillus pestis in fact come to one, when the human type is convertible to that of the rat. The stronger was able to be milder, but the milder could not be stronger. It is evident that degeneracy is an easy task, as the preliminary process of decay. The recovery of strength by a degenerated species is a difficult process though not impossible. The bacilli, evidently, follow the course of all vital structures.

A Note on the Occurrence of a Spirillum in the Blood of Patients Suffering from Secondary Syphilis.

In the Lancet of Sept. 30, 1905 we have the following by Surgeons G.M.O. Richards and Lawrence Hunt :—

"HAVING read the accounts of the discovery by Schaudinn and Hoffman of a spirillum in the hard sore and other lesions of syphilis and of Roux and Metchnikoff who found the same organism in the chimpanzee inoculated with the secretion from a syphilitic chancre, we investigated the same organism in cases under our care.

Our procedure to begin with was to examine films from every case of venereal sore and we found in films made from scraping some of the sores the organism described by Schaudinn and Hoffman. It appeared to occur in three forms, presumably involution forms of the same organism, differing only in thickness, length, and the number of spirals; one form being thick and straight or slightly curved, a second of the same thickness as the first but with spirals, and the third one exceedingly thin, distinctly spiral, with a large number of turns and very long. The first two varieties appeared to exist in the secretion and the superficial part of the sore, whilst the third variety only occurred in the deep scrapings, and in a film from such scrapings the organism could be seen lying amongst the blood cells.

As the secondary stage of syphilis appears clinically to be a stage when the infection is blood borne and drawing an analogy from the rose spots of typhoid fever where bacilli have been found, we took a case of secondary syphilis with a rash of a few days' duration, pricked a typical spot, and made the blood films, taking the greatest care to avoid contamination by cleaning the skin with soap and then spirit and using specially clean slides. The films were then stained for five minutes by Giema's stain diluted 1 in 3 with distilled water, and on examination were found to contain a spirillum exactly like the fine form found in the sore. Other cases were taken and we have now observed the same organism in three patients.* Films were taken from spots on the abdomen, chest, and arm. The spirilla do not occur in large numbers and often require a long search and in some of the films only one has been seen. In one patient the organism was seen in a blood film taken on each of ten successive days and in the three cases in which the organism was found in the blood it had previously been seen in all forms in the primary lesion.

From our observations the presence of spirochætæ in the venereal sore appears to be diagnostic of syphilis, and up to the present all cases in which the organism has been found have developed a secondary rash. Later we hope to publish statistics of a large number of cases."

The bacillary development in secondary syphilis is interesting for affecting the blood cells and the appearance of the secondary rash. The spirochætæ are ascribed to be the cause of the eruption. The development of the primary spirillum to the spirochætæ has not been sufficiently proved. To establish the connection between the two, more investigations are necessary.

Sale of Unsound Food—Ptomaine Poisoning—Damages.

In the Clerkenwell Country Court, the following decision stated in the Public Health for October has been arrived at :

"This was an action for damages brought by a widow against the defendant, a fishmonger, for damages for the loss of her son, caused by his having died in consequence of eating some stewed eels, which he purchased from the defendant. The action was brought by the plaintiff under Lord Campbell's Act, as she was partly supported by her son. The evidence showed that Mrs. Smith's son, who was a billiard marker, went to the defendant's shop on May 11th, and purchased some stewed eels. Sickness ensued, and a few days later the young man died. The medical evidence, both at the coroner's inquest and in the present action, showed that death was due to ptomaine poisoning.

The defendant said his eels were kept alive in a tank and only taken out as required for cooking. Between 700 and 800 customers were served on the day when the plaintiff's son was said to have called, and not a single complaint had been received.

Judge Edge said the questions raised in the case were most important, not only to the defendant, but to all people who supplied food to the public. Whether there was carelessness or not on the part of the defendant's servants, the fact remained that this young man died from some poisonous matter that was undoubtedly taken by him in the course of eating the eels. He found that there was no negligence on the defendant's part; but under the Food and Drugs Act and the Sale of Goods Act a person who sold food to the public was held to warrant that such food was good and wholesome for the purpose for which it was wanted. In this case Smith had no choice whatever in selecting the eels, and he relied entirely upon the defendant's skill and judgment to provide him with a good and wholesome article. The coroner's jury decided that the ptomaine poisoning arose through eating bad fish, and although he (the Judge) was not bound by the coroner's jury, yet the conclusion was irresistible that Smith died in consequence of eating the eels. That being so, the defendant was liable for damages, and his verdict would be in the plaintiff's favour for £40 and costs."

The decision will lead to good result by preventing the sale of unsound meat and fish. In India the want of such law is badly felt, for it is a notable fact that almost no restriction is placed to prevent the sale of unsound foods. The rule in the bazars of Calcutta is to sell them after ten in the morning as from that time the supervision of the Food-Inspectors ceases to exist. Ptomaine poisoning happens though not often in this country and lately a case came to our observation.

Burke's Experiments.

Sir William Ramsay in The Independent says:

"MR. BURKE made use of solid radium bromide in fine powder. He sprinkled a few minute grains on a gelatine broth medium, possibly somewhat soft, so that the granules would sink slowly below the surface. Once there they would dissolve in and decompose the water, liberating oxygen and hydrogen, together with emanations, which would remain mixed with these gases. The gases would form minute bubbles, probably of microscopic dimensions, and the coagulating action of the emanation on the albumen of the liquor would surround each with a skin, so that the product would appear like a cell; its contents, however, would be gas, or, rather, a mixture of the gases—oxygen and hydrogen. The emanation, enclosed in such a sack would still decompose water, for enough would diffuse through the walls of the sack, which, moreover, would naturally be moist. The accumulation of more gas would almost certainly burst the walls of the cell, and almost equally certainly in one, or two places. Through the cracks more gas would issue, carrying with it the emanation, and with it the property of coagulating the original bubble would resemble a yest cell, and the second cell a bud, or perhaps more than one, if the original cell happened to burst. This process would necessarily be repeated as long as the radium continued to evolve emanation, which would be for the best part of a thousand years. The 'life' therefore would be a long one and the 'budding' would impress itself on an observer as equally continuous with that of a living organism.

I am surpprised to learn from Mr. Burke's first letter that the 'organisms' appear to dissolve in water. The emanation does not coagulate or apparently affect gelatine, for I have tried and found that it does not; indeed, it was not to be expected. Is it possible that the gelatine is pushed away to form the cell-wall, leaving the albumen as a partial contents of the cell, along with gas? The latter would, doubtless, diffuse through the cell-wall of coagulated albumen and dissolve in and mix up with the water. On placing the apparent 'organism' in water the gelatine, too, would be extracted, and the cell would seem to disappear, the wall being excessively thin. It would be interesting to learn if Mr. Burke has attempted to stain his 'organisms' with the usual dyes used by microscopists. It is possible that the coagulated albumen would take the stain better than the uncoagulated matter and that the structure would thus be revealed.

As I said before, I have no desire to dogmatize. The supposition that the pouring of energy in some form into matter similar to that of which living organisms are made, and which serves as sufficient food for actual living organisms, might conceivably result in the production of life, is a very attractive one. But one is bound to sceptical, and the explanation which I have ventured to suggest appears to me to be sufficient to meet the case. But no one will rejoice more than I if it should utimately prove to be inadequate."

Mr. Burke's experiments to prove the connecting link between the animate and the inanimate world are open to many critisism. Unless the experiments undergo re-trial to prove his assertion, it will not be safe to assert the discovery of the lowest animal life. A few years ago, the news came from Mexico that Professor Heerara has discovered of such animal existence. But since nothing has been heard.

Plague and Overcrowding at Bombay.

The following is from Lancet, September 16.

"IMPORTANT public meetings have been held at Bombay which may be taken to indicate an awakening of conscience on the part of leading inhabitants. The great mill owners and others are compelled to recognise that the very high death-rate and the prevalence of plague are evils that could in a large measure be checked. The form of precaution which has found most favour is that of inoculation with Professor Haffkine's prophylactic. Some mill owners have promised to give Rs. 50 to the family of any one of their work-people who die form plague within a year after being inoculated. That sounds very well but certain of the mill owners who make this offer are working their employés more than 12 hours a day, and perhaps, as members of the Bombay municipality, are helping to put aside proposals made for the purpose of improving the housing of the poor. Inoculation may prevent a person from dying from plague but if he is overworked, badly paid, and lives in an insanitary, overcrowded dwelling he will die prematurely, though the immediate cause of death be some other sort of disease. Formerly the hours of labour in the Bombay mills were limited by the duration of the daylight and therefore did not exceed 12 hours. Now, however, that electric light has been introduced the work can be prolonged indefinitely and consequently some of the mill hands are now kept at their task for 14 or 15 hours a day and this with a temperature in the shade of from 85° to 95° F. Finally, when these wretched people have finished their work they go home to jerry-built houses of so miserable a character that they are not only insanitary but unsafe. A member of the Bombay Corporation, pointed out at a recent meeting that "last year 202 notices were issued by the municipal authorities for the removal of unsafe buildings; that in the last five years 122 buildings or parts of buildings have collapsed in the city, killing 26 and injuring 30 people; that nowadays frame buildings in Bombay are made with inferior wood, the work is scamped, and the structures are shaky and jerry-built." Some idea of the insanitary condition of the dwellings may be gathered from the fact that a bye-law was proposed to establish 40 superficial feet and 300 cubic feet as the legal minimum of space for each inhabitant. But to enforce this rule it was calculated that it would be necessary to displace 235,000 persons out of a total population of 718,650. Of this population of Bombay the greater part—namely, 80·86 per cent.—occupy one-room tenements and the average number of persons living in each room is 4·21. That cholera and plague should prevail under such conditions is in nowise surprising. Bombay seems to be passing through a somewhat similar phase of economic development as that which afflicted the great manufacturing centres of England in the "forties." It greatly needs a Lord Shaftesbury with his Common Lodging-houses Act of 1851, it needs the British Ten Hours Act, and many of our sanitary and building Acts and bye-laws."

Several facts have been noticed in this note. We can not understand the importance of Haffkine's prophylactic serum; when it has failed to reduce the mortality in the Panjab, where Haffkinism was in its full force. The insanitary condition of Bombay may be compared to that of other cities in India. The people of India are poor and therefore they can not afford to pay for costly sanitation. Government should come to their relief. The pressure on Bombay is nothing but the jealousy of Manchester. Being defeated in the attempt to impose duty of two per cent. on short rills, it has come to the Factory Act to impose pressure.

CLINICAL RECORD.

Foreign.

GYMNASTICS AS A THERAPEUTIC AGENT.

BY HELEN S. CHILDS, M.D., BOSTON, MASS.

[Read before the Massachusetts Homœopathic Medical Society.]

Case 1. Miss S., aged eighteen; height, five feet, six and one-half inches; weight, one hundred and fourteen pounds; chest measurement, thirty-one inches. Respiratory murmur weak and shallow, lateral curvature, lordosis, menses once in twelve months, unable to walk any distance without being exhausted. No appetite.

Ten weeks later. Height, five feet, nine inches; weight, one hundred and thirty-four pounds; chest measurements, thirty-four inches. Respiration eighteen, deep and regular. Spine nearly straight She walks six or eight miles without being tired, swims, exercises, and dances; appetite excellent. Have learned from the physician that she has taken the full college course during the winter and is in good general health.

Case 2. G. C., aged fifteen years, six months; height, five feet; weight, eighty-nine pounds; chest measurement twenty-eight inches. Respiratory murmur weak; right scapula protrudes; chest narrow, claviclæ prominent; right lung compressed from old pleurisy.

Ten weeks later. Height, five feet, two inches; weight, ninety-eight pounds; chest measurement, thirty-one inches. Neck full, shoulders straight, respiration clear, full.

Case 3. V. C., aged twelve years, eleven months; weight, seventy-one pounds; height, four feet, ten inches; chest measurement, twenty-nine inches. Respiration, faint, rapid. Has always been subject to lung affection and spent winter South.

Ten week later. Height, five feet; weight, eighty-five pounds; chest measurement, thirty-two inches; respiration, clear and regular.

No case had medicine of any kind. Just plenty of good, nourishing food, milk, water, gymnastics in the pine woods, swimming, and an out-of-door life. They all increased in height, weight, and chest measurement and greatly in endurance. If we are to choose between medicine and gymnastics let us try exercise first, and many times even homœopathic remedies will not be required.—*The New England Medical Gazette*, August, 1905.

HAMAMELIS IN WOUNDS.

By Dr. F. G. Oehme.

First Case. My left thumb was accidentally caught between a door post and the door, the sharp edge of the latter pressing violently on the thumb back of the nail. The pain was very severe and the jammed part soon grew black, but the skin was unbroken. I applied at once a cloth saturated with *Hamamelis* and kept it wet for several hours, also occasionally took a few drops of the *Hamamelis* internally. After about ten minutes the pain subsided. After dispensing with the wet cloth I occasionally merely moistened the injured part with the *Hamamelis.* Next day there was only a slight soreness left and the blood-extravasation was so much less that the thumb required no further attention. Some six or seven weeks later to my great surprise the nail began to come off and a new one appeared.

Second Case. Some 20 years ago while making one morning professional visits on horseback I passed a wheelwright shop. Wishing to speak to the owner, at work in his yard, I rode up to him. The yard was considerably littered up, therefore I picked out the cleanest part for my horse. After a short conversation I rode home about four miles at a lively gait, and after arriving and tying the mare in the yard I noticed that she kept kicking with one of her hind feet, and therefore examined her foot and found that a nail had entered close to the frog, about at the middle between the forward and back end of the frog; it also had perforated at the top of the hoop, about one-half inch below the hair and protruded about one-half an inch. It had gone right through the middle of the whole foot. I carefully removed the nail and succeeded in getting it out unbroken. It was over four inches in length. A small roll of cloth, saturated with *Hamamelis,* was applied to the frog where the nail had entered, then the whole foot wrapped in several layers of cloth, all well saturated with *Hamamelis,* and over all some dry cloth to prevent evaporation. *Hamamelis* was poured on the inner cloth several times during the day, the last time at ten o'clock P. M. Some *Hamamelis* was also poured on her oats. The next morning on examining the foot, as moderate pressure seemed to cause no pain, I led her a few steps and found that she did not walk lame. The same treatment was continued the second day. On the third forenoon her foot was again examined, and as she showed no pain on hand pressure and rapping I rode her carefully about one mile.

As this ride seemed to have no bad effect, I rode her on the fourth day several hours as usual, but favored her somewhat.

I described the case to an old blacksmith, asking how long it would take to get over such an injury. He replied one month at least.

Hamamelis is the more effective the sooner it is applied after an injury. If the skin is unbroken, use the full strength, also take internally a few drops ; but if the skin is broken, use half *Hamamelis*, half water.

After the birth of a child we have had the mother cleansed with half *Hamamelis* and half water, lukewarm, and afterwards a compress saturated with the same solution applied to the pudenda. It removed the soreness quickly.

We have several remedies, like *Arnica*, *Calendula*, *Hypericum*, *Ledum*, *Rhus*, *Symphytum*, etc., which have proved of great value in external injuries and which would often achieve a quicker cure than the routine antiseptic treatment.—*Homœopathic Recorder*, August 15, 1905.

CASES OF DIPHTHERIA.

By Dr. Grubenmann, in St. Gallen.

Translated for the Homœopathic Recorder from the *Allg. Hom. Zeit.*, May 16, 1905.

For about fifteen years I have not used any other homœopathic remedies than *Mercurius cyan.*, *Mercur. bijod.*, *Lachesis*, *Apis*, *Acid nitr.* and *Lycopodium ;* in accordance, however, with the experience gathered before in diphtheria, I never give anything below the thirtieth centesimal dilution, and I may say that I have never had any severe sequelæ, such as post-diphtheritic paralyses or albuminuria of more than a few days' duration. In my many hundreds of cases I have never as yet had any cases of paralysis of the fauces, the nose, or of the upper or lower extremities, except in the one case of Willy K., in St. Gallen. He was taken sick on November 9, 1904, with diphtheria faucium et narium with a moderate degree of fever ; the exudation in the fauces remained quite small for the first three days, while the sharp, corrosive and fœtid secretion from the nose made the parts between the mucous membrane and the external skin very sore. On the 18th of November, after almost continuous insomnia and restlessness, there appeared grayish, foul and torn membranes on the tonsils, the arch of the palate and the uvula, tending even to the soft palate and not only the tonsils, but also the glands of the neck, swelled up, as also the glands on the outside of the throat to a considerable degree, so that the head and throat showed the well-known and disquieting aspect of a round and pretty much shapeless mass. Here I will not omit to state that in such an advanced state of the disease I not only give *Nitric acid* 30 and *Mercurius bijod.* 30 every hour, but also for the last two years I have been using a homœopathic remedy externally from the end of the jaw to the neck; this remedy is *Arsenic iod.*, in the fourth decimal dilution, ten drops in one or two tablespoonfuls of absolute alcohol of 95 per cent. Septic cotton is moistened with this and laid on the outside of the neck and is attached with India rubber strips, being renewed every two to three hours. I could always, after twenty-four hours, see some diminution of the swelling of the glands, and I would continue this application at most for four days, always without any ill consequences. In the case of Willy, as a result, the glands were less swollen, the exudation on the fauces also received a better color, became more compact and more yellowish, and the line of demarcation soon showed itself, the red line, for which I always look, and which tells me in the most severe cases that the process of cure is securely established, but fully eighteen days elapsed before the throat was perfectly clean, although the fever had stopped long before; no other case under my treatment had ever taken so long.

I may explain this long duration of the treatment to state that the little boy showed a pronounced lymphatic state, was anæmic and had always been ailing in his digestive apparatus. This case labored for three weeks afterwards with paresis of the pharynx and nose and of the upper and lower extremities; but he attained to perfect health and vigor through the use of *Causticum, Gelsemium* and *Phosphorus.* I do not usually treat an ordinary faucial diphtheria for more than six days, and when complicated with nasal diphtheria for ten days.

Another case that was almost equally severe was that of Emma Gr., in St. Gallen, three years old; but her constitution was better and so she got over her diphtheria of throat and nose, attended with a swelling of the glands on the outside of the throat and of the cervical glands from December 4 to 13 by a brilliant cure. The remedies in her case were *Mercurius cyan.* 30 C., *Lachesis*

30 C., and *Apis* 30 C., while *Arsenicum jod.* 4 D. was used externally.

The third severe case was that of Grittli M., combined with diphtheria of the nose; this occurred in October, 1904, and proceeded in like favorable manner.

The fourth severe case was a genuine croup, with only a little and slight formation of membranes in the fauces. On the 9th of December, 1904, in the evening, I was called to see Walter B., and found that he had already lain for twelve hours (after his mother had given him *Aconite* and *Spongia*) in a state of increasing stenosis. His temperature was 104°, with frequent and high pulse, the suffocative dyspnœa was continuous, not by fits and starts, attended with some stridor. I would here remark, that in genuine croup, as well as in pseudo-croup, whether before or after diphtheria, I never give the diphtheria remedies properly so-called, but always *Aconite*, *Hepar*, *Spongia*, *Kali bichrom.* and *Phosphorus* in the 30 C.; of these this patient received *Hepar*, *Kali bichrom.* and *Phosphorus* These remedies have hardly ever left me in the lurch in laryngitis diphtheretica, and I was astonished when the parents of the boy sent for me in a hurry on the following morning, because the boy still had stenosis. Without hesitation I gave the boy also the alcohol compresses with *Arsenicum Jod.* 4 D., as large as a plate, over the region of the larynx, and by evening the dyspnœa and all danger were over; nor was there any farther formation of membranes in the fauces or the nose. *Arsenicum jod.* helped also here, although there was no glandular swellings, for few of my colleagues will suppose that a stenosis of the larynx which had steadily increased for twenty-four hours without any free intervals should by some lucky turn have passed into a spontaneous cure.

I would again emphasize that I consider it a *conditio sine qua non* for a successful treatment of diphtheria, that the thirtieth centesimal potency be used, and although I consider the lower dilutions as indispensable in many other forms of disease I would absolutely not dare to pass in this case below the thirtieth potency, and I conclude with the words of Bacon of Verulam: Truth is the daughter of time, not of authority.—*Homœopathic Recorder*, August 15, 1905.

Gleaning from Contemporary Literature.

A CLINICAL STUDY OF SOME DISEASES OF THE PANCREAS.

BY FRANK A. WATKINS, M. R. C. S., L. R. C. P., L. S. A.,

Pathologist to the London Homœopathic Hospital.

During the last twelve months five cases of pancreatic disease have passed through the wards of this hospital; and as wishes have been expressed that one of them at least should be published, I have ventured to bring them before the notice of this Society in the hopes that they will not be found altogether uninteresting and of some practical value.

Case 1.—As there was nothing of much interest in this case, I do not intend to give the details, save to mention that the patient was suffering from general tuberculosis, which probably originated in the genito-urinary tract. When the *post-mortem* examination was made, it was found that there were numerous patches of fat necrosis distributed throughout the peritoneum. The pancreas, on macroscopic examination, appeared to be normal, but, unfortunately, no microscopic section was made. A section of the necrosed fat is laid on the table for your inspection.

Case 2.—J. J., housekeeper, aged 58 years, was admitted into the London Homœopathic Hospital, under the care of Dr. Washington Epps, on March 21, 1904, but had been an out-patient under the care of Dr. Stonham since the previous August, suffering from jaundice. Patient thought the jaundice was due to sleeping on a damp bed; says that the day after she noticed her urine changed colour, and this was followed within fourteen days by general jaundice.

Previous history good, with the exception of attacks of "congestion of the chest," which sometimes laid her up. Climacteric was reached at age of 50. Says she has been losing flesh lately.

Present Condition.—Complains of no abdominal pain. Marked œdema of legs up to the knees. Loose white stools, dark urine, tongue rough. Chest feels tight, harsh respirations all over the chest. Jaundice is present. Abdomen is distended, and contains some free fluid.

March 23.—Complains this morning of sharp hepatic pain extending to the right shoulder, also of "wind" in the abdomen, which is tensely distended, so that the contents cannot be now palpated. Urine contains a little bile.

March 25.—Examination *per rectum* revealed ballooning of the rectum and retroversion and retroflexion of the uterus. Considerable tenderness of the uterus on manipulation.

April 20.—Pain continues in the hepatic region and over right shoulder. Has gained 4½ lbs. in last fourteen days. Jaundice is rather more marked.

April 21.—Asthmatic râles all over the chest. Gurgling and bubbling sounds of fluid over back of right lung at base. Vocal resonance is also diminished. Œdema of the back as high as the tenth dorsal spine, also of the abdominal walls and legs. A consultation was called, and it was thought that patient was suffering from malignant disease of the liver.

April 30.—Abdomen tapped yesterday, and 9¾ pints of bile-stained transparent fluid were drawn off. This morning, peritoneum seems about full as before; the œdema of the legs has been much relieved.

May 2.—Paracentesis abdominis again performed yesterday, and 9 pints 18 ounces of fluid withdrawn. There is no enlargement of the liver to be made out by palpation and percussion. The signs of fluid at base of right pleura are still present.

May 5.—Patient became more feeble each day and died on May 12.

Post-mortem examination was made on May 12 by Dr Frank A. Watkins, pathologist to the hospital.

Both pleuræ contained a small quantity of bile-stained fluid, and a small amount of lymph was present on the visceral pleuræ.

Both lungs were much congested, especially the bases.

The pericardium contained a small quantity of fluid, and there was some lymph on the visceral pericardium.

The heart was pale and very flabby; aortic and mitrah, valves were atheromatous.

Abdomen.—There was very little omental fat present. The peritoneum contained an enormous quantity of bile-stained serum. The liver was markedly cirrhotic, its surface presenting a hopnailed appearance, and its consistence was exceedingly tough. There was evidence of recent hepatitis on its upper surface; there were dense adhesions around the gall-bladder and transverse fissure, the former being so compressed that it contained only a very small quantity of bile. Weight, 38 ounces.

Spleen weighed 8½ ounces.

Kidneys.—Both intensely congested; capsules stripped with difficulty.

Pancreas.—Weight, 6 ounces, and showed slight evidence of hæmorrhages.

Microscopic Report.

Section No. 469 taken from pancreas.—This shows the presence of a considerable round-celled infiltration of the glandular tissue. There are small hæmorrhages present in the fibrous septa between the lobes of the pancreas.

The autopsy showed that the disease of the liver was not due to a malignant growth, but that it was due to cirrhosis, and also revealed the presence of hæmorrhagic pancreatitis and enlargement of the spleen. It is not an uncommon occurrence to find pancreatitis associated with cirrhosis of the liver; more especially in those cases described as "diabetic bronzing." I have drawn attention elsewhere that this association seems to throw light on the etiology of pancreatitis. The cirrhosis of the liver occurs first—being the result of absorption of toxins from the portal circulation; when the functions of the liver fail the toxins enter the general circulation and then ensues the pancreatis.

Case 3.—I am indebted to Dr. Hall, of Surbiton, for his kind courtesy in furnishing notes of this case prior to her admission to the hospital

"The patient, C. M., came to me at the dispensary complaining of dyspeptic symptoms, but, as I had not the time there to examine her carefully, I suggested seeing her at home in bed. On December 6, 1904, I paid my first visit and examined her carefully. She complained only of sickness, and vomited all food; the matters brought up were mostly fluid and of a dark green colour, and at times were very copious; the only pain complained of was under the right scapula posteriorly. Nothing was found in the lungs or heart. Upon inspecting the abdomen, there was apparently no distension and no abdominal swelling in any part. Upon palpation, there seemed some dilatation of the stomach; and the liver dulness appeared to be very small, but there was no general tympanitis and no evidence of free fluid in the abdominal cavity. No pain or tenderness was elicited in any part of the abdomen after most careful palpation. Bowels were somewhat constipated, but were moved by enema or mild purgatives, and the motions were of the normal colour. There were no pelvic symptoms, and examination *per rectum* revealed nothing. I saw her almost daily until the 19th, and during this time the sickness gradually increased so that nothing could be retained upon the stomach; the tongue also became dry and brown, and the pulse quick and feeble. Rectal feeding was resorted to, and the vomiting was controlled to some extent, but still continued. On the 29th inst. Dr. Johnstone saw the patient with me, and made a careful examination, but could not find anything definite; he suggested there might be obstruction of some kind and advised her removal to hospital, as an operation might be rendered necessary; she was accordingly carefully removed and placed under the care of Dr. Byres Moir. I may say that from the symptoms I looked upon the case as one of liver trouble, and treated it accordingly, but later on was very much puzzled and could not decide exactly what was the pathological condition; the urine was examined from time to time, but nothing abnormal was found. None of the remedies used had any effect in checking the vomiting; only the rectal feeding seemed to control this in any way."

The patient was removed to Durning Ward of the London Homœopathic Hospital, under the care of Mr. Knox Shaw, on December 30, 1904. The following clinical notes were made by Dr. A. Taylor, the house physician.

History of the present illness.—Since June, 1904, has complained of pain and distention of abdomen. Five to six weeks ago began to vomit; this, later on, became of a pumping character, and amounted to about one and half a pints at a time; the colour was a dark green, with a sediment at the bottom. Two or three days before admission the vomit was said to be black, like clotted phlegm. Micturition became difficult whilst in the recumbent position, and, consequently, patient was obliged to sit up, when she would pass about a teacupful of urine at a time.

Past history.—No previous illness, always strong. Has eight children living. Temperate habits.

Present condition.—Lies in a semi-dozing condition; has a deep red flush over the face; tongue dry, fissured, brownish-white fur; answers questions rationally. Urine contains slight cloud of albumen, somewhat turbid, amber colour.

Abdomen.—Walls very thick, doughy, and flabby. Nothing abnormal felt on palpation. Very little dulness over the liver area; some tenderness in the mammary line. Nothing abnormal detected with the spleen.

On January 2, 1905, patient was transferred to Quin Ward under the care of Dr. Byres Moir.

January 3.—Vomited once yesterday. Nutrient enemata were tried, but were not retained, so patient was fed by the mouth with Valentine mixed with hot water. Two hypodermic injections of 1-60 grain of strychnia were given during the day.

January 4.—All enemata are returned. Vomited twice yesterday. Now in a cold sweat; pulse almost imperceptible. Temperature at 12 p.m. yesterday, 96·8°; this morning at 8 a.m., 100·4°. Patient died at 2 p.m.

Post-mortem examination was made on January 5 by Dr. Frank A. Watkins. Excessive amount of adipose tissue everywhere. Both pleuræ were adherent; no serous fluid in the cavities. Venous congestion very marked in both lungs. The pericardium was normal. The myocardium was pale and flabby, but did not contain much adipose tissue; the valves appeared to be normal.

Stomach.—Enormously dilated; the mucous membrane presented evidence of gastritis, with petechial hæmorrhages, and there was a small superficial ulcer near the pyloric orifice.

Intestines.—The first part of the duodenum was enormously dilated, and appeared to be a part of the stomach, so that the pyloric sphincter was quite obliterated. The second part of the duodenum was much contracted, and its lumen allowed only of the passage of a little finger, the obstruction being caused by the pressure of the enlarged head of the pancreas, which was encircling the bowel in two-thirds of its circumference.

The wall of the duodenum was not infiltrated with growth apparently. The remainder of the small intestine appeared normal. The large bowel was nearly empty and collapsed.

The appendix vermiformis appeared healthy.

No peritonitis was present. No fat necrosis.

Liver.*—Weight, 46½ ounces; presented a nutmeg appearance, and some yellowish patches were present on its upper surface, and extended for some little distance into its substance; this was probably due to fatty degeneration. No evidence of cirrhosis was present. The gall-bladder was greatly distended with bile, owing, probably, to pressure on the common bile duct at the back of the head of the pancreas. A very small gray-white nodule, about the size of a mustard seed, was observed on the under-surface of the liver, and removed for microscopic investigation.

Pancreas.—The head was much enlarged and very hard and tough, and enveloped the second part of the duodenum in two-thirds of its circumference. The tissues here were matted together, and the mesenteric fat seemed to be infiltrated with the growth in the pancreas.

Spleen.—Normal.

Kidneys.—Both showed the presence of venous congestion; the capsules stipped fairly easily.

MICROSCOPIC REPORT.

Section No. 551 taken from head of the pancreas.—There is no normal glandular tissue in this section, but it has been replaced by a carcinomatous growth chiefly of an encephaloid type, in which the alveoli are filled with cubical or spherical cells. In the centre of the section are some tubules lined with one or more layers of columnar cells.

Section No. 552 taken from under-surface of the liver.—The liver tissue is intensely congested all around the nodule, and the hepatic cells are in a state of advanced fatty degeneration; in places are some granules of dark brown pigment. The nodule consists of a tubular carcinoma, in which some of the tubes are lined with columnar cells, others with cubical or spherical cells.

Section No. 552A taken from another part of the liver distant from the nodule.—This is not nearly so much congested.

A specimen of urine which was forty-eight hours old was examined on the day of the *post-mortem* examination for Cammidge's pancreatic crystals, but none were found in either tube.

From the autopsy it is evident that the primary cause of death was the carcinoma of the pancreas.

It will have been noted that prior to death there were present no signs or symptoms which would lead one to suspect cancer of the pancreas; in fact, the only pathological condition diagnosed was the dilatation of the stomach which was revealed to Dr. Hall, on palpation of that organ; and confirmed in the hospital by the "pumping", character of the vomiting; and Mr. Johnstone suspected the intestinal obstruction. When the growth in the pancreas spreads in an upward and forward direction, as in this case, it usually causes jaundice by pressure on the common bile duct, as well as the pyloric obstruction with consequent gastric dilatation; and when they are both present there would not be much difficulty in arriving at a correct diagnosis. If this patient had lived a little longer no doubt the jaundice would have supervened, for the gall-bladder was already greatly distended.

Is there any other method of examination by which we may determine the presence of disease of the pancreas? Mr. Mayo Robson, in conjunction with Dr. Cammidge, believes that there is. In the Hunterian and Harris and Gale lectures, delivered at the Royal College of Surgeons last year, they made their most interesting communications; they maintain that by treating the urines of such patients chemically a reaction is obtained whereby it is possible to determine not only whether pancreatic disease is present but also the nature of it, that is whether it is due to a malignant growth or acute or chronic inflammation, and if glycosuria is present, whether this is of pancreatic origin or not. They base their conclusions on the investigations of 300 specimen of urines; during the latter part of their researches the urines from patients suffering from suspected pancreatic disease were sent to the laboratory for examination without any indication as to the nature of the report expected, and thus any unconscious bias was avoided, and a true estimate of the reliability of the tests was formed. Reactions pointing to pancreatic disease were obtained in 111 cases, and the diagnosis in every case was confirmed on operation.

The specific reaction appears to be due to the presence of glycerine in the urine, which has been liberated from the fats of the body by the influence of the pancreatic juice. By treating this urine with certain chemicals crystals are precipitated having a similar appearance to those of phenyl maltosazone, but somewhat finer; they are of a golden-yellow colour, needle-shaped, and arranged in sheaves or rosettes. The process is a lengthy one, and takes about an hour to carry out; the crystals are precipitated during the following twelve to twenty-four hours, and then their solubility in dilute sulphuric acid must be tested. The process fully described will be found in the *Lancet* of March 19, 1904. It must be carried out with the most scrupulous care, otherwise somewhat similar crystals will appear and the results vitiated.

It will have been noted that I applied the test to the urine obtained from the above case of pancreatic carcinoma with a negative result; but I think that was due to the fact that the urine at the time was in a state of decomposition, and had been obtained from the patient whilst in a moribund condition.

Since then I have examined the urines from two cases of suspected pancreatic disease, and in each case obtained positive results.

The following is an extract of the clinical notes of one of these patients, made by Dr. A. Taylor, house physician:—

Case 4.—F. P., aged 38, female, admitted into the London Homœopathic Hospital on October 4, 1904, under the care of Dr. Galley Blackley.

Seven years ago began to be troubled with pain in the stomach after food, and later on it also occurred during the night, compelling her to get up and walk the room; felt sick at times, but never vomited. Three months ago noticed herself become yellow and a month later clear water used to come up into her mouth during the night. Has not been able to work for some time, as movement makes her feel sick. Has avoided vegetables and fruit for the last three months, as she could not digest them. Says she has been losing flesh since the appearance of the jaundice.

Present condition.—Has been free from stomach pain now for two months, but there is some aching in the right loin. The urine has been thick and green since the appearance of jaundice. Bowels regular, motions are the colour of putty, appetite very good, tongue dry and furred, sleep very broken, catamenia have been irregular for last two months, temperature varies from 98° to 100·2° F., patient is deeply jaundiced all over. Weight on admission, 5 st. 9 lb.; says she used to weigh about 7 st. before the jaundice. Liver projected below the costal margin for a distance of three fingers'-breadth.

October 20.—A specimen of urine was treated yesterday by Dr. Watkins according to Cammidge's test for pancreatic crystals, but none were found. Microscopic examination of the fæces did not show any excess of fat globules, but abounded in fine needleshaped crystals, which are probably fatty acid crystals.

October 24.—Weight, 5 st. 5¼ lbs. Symptoms and condition remain much the same. To-day a consultation was called, and there was a good deal of difference of opinion as to the condition of the liver; the majority thought malignant disease of the liver was present, others that the jaundice might be due to unilobular cirrhosis or blocking of the common bile duct by gall-stones. It was agreed to put the patient on chel. 1x.

November 21.—Weight, 5 st. 7½ lbs. Motions are more gray in colour.

December 12.—Another consultation was called to-day, but no agreement as to the condition was arrived at. It was decided to postpone any exploratory operation for the present. Protiod of mercury 3x. was prescribed.

February 6.—Weight, 5 st. 10¾ lbs. Condition much the same. At a consultation held to-day an exploratory operation was advised.

Cammidge's test was again applied to a sample of urine by Dr. Watkins, the bile pigment being first removed, and a search made for glucose and albumen. After twenty-four hours in A tube there was a heavy deposit of golden-yellow crystals arranged in rosettes. No crystals in B tube. The crystals, when exposed to a 33 per cent. solution of sulphuric acid, dissolved in thirty-five seconds. According to Cammidge, this would indicate that an exploratory operation is advisable, and that pancreatitis is present in an acute form.

February 14.—Patient was anæsthetised and Mr. Dudley Wright made an angular incision about eight inches long below the costal margin. It was then found that the liver was not enlarged, was very dark in colour, and showed signs of old localised hepatitis. The abdominal cavity contained a large quantity of serous fluid, somewhat bile-stained. The stomach and colon were adherent to under-surface of the liver. The gall-bladder could not be found on account of adhesions of other structures, which entirely shut it out from the peritoneal cavity. In the position of the head of the pancreas was a hard mass, and from this an extension upwards was felt to the region of the transverse fissure, where another large hard mass was present. Several enlarged mesenteric glands were noticed. The wound was immediately closed, and it rapidly healed, and patient was discharged on March 1.

February 25.—Dr. Watkins made another examination of the urine, but obtained no crystals in either tube. The urine contained very much less bile pigment.

It is much to be regretted that, owing to the extensive adhesions, the pathological condition could not be more definitely defined, but there can be little doubt that the patient was suffering either from cancer of the pancreas or a growth in its immediate neighbourhood, which was obstructing the common bile and pancreatic ducts. The results obtained by examination of the urine would indicate that the latter was the true explanation, and the pressure being intermittent, and reaction was not obtained constantly.

From a diagnostic point of view, this case was of a most puzzling character. At first the opinion leaned to cancer of the liver, but, when the supposed nodules on its surface could no longer be felt, and the patient was gaining weight, this view had to be abandoned (the operation revealed that some of the increase in weight could be accounted for by the occurrence of ascites). Subsequently an exploratory operation was recommended with the expectation that the jaundice was due to gall-stone obstruction. It may be of interest here to consider what signs and symptoms should have been present to confirm this view. Until quite recently it was taught that the gall-bladder would be found enlarged, but most surgeons now concede that Courvoisier's law is a true one, and which declares that there is no distension of the gall-bladder, but that, on the contrary, it is contracted; in many cases it is so deeply placed as to be quite out of the reach of the finger until the abdomen is opened. When this viscus is dilated it is due to quite other causes.

There is usually a rise of temperature attended by an ague-like attack. Murphy says: "The temperature rises to 104° or 105° within an hour, remains stationary for a few hours, and then drops suddenly to normal, and remains normal for hours, days, or even weeks, when it will go through the same rapid variation, and continue to repeat itself at irregular intervals." "These temperature changes are so characteristic that I have given them the name of temperature angle of cholangic infection."

The pain is agonising, and radiates towards the right scapula, but never towards the pubes. Vomiting is the most frequent reflex. The position of the stone determines whether jaundice is present or not. In passing, I might mention that the most delicate test for the presence of jaundice is to withdraw into a capillary tube a few drops of blood from the patient; if bile pigment be present it will at once be obvious.

Besides these characteristic symptoms of gall-stone cholangitis, there are two tests which can readily be applied and the reactions are as constant as McBurney's tender point in appendicitis, and generally they can be elicited weeks after an attack of biliary colic. The first was introduced by Mayo Robson: "Draw a line from the tip of the ninth right rib to the umbilicus; pressure with the tip of finger along this line will reveal a tender spot, usually situated about one inch above and one inch to the right of the umbilicus."

The second test is described by Murphy as follows: "The operator places the patient in a sitting position, with his back to the examiner. The trunk is flexed, the patient's hands resting on his knees. The examiner, sitting behind, places both hands around the patient's abdomen, all clothing having been removed, so that the points of his fingers are directed towards the middle line. The thumbs are uppermost. He then grasps the upper abdomen below the costal arch, whilst the patient is instructed to breathe deeply. With each expiration the hands sink more and more deeply, the left below the spleen, the right below the liver. As the right hand approximates the tender gall-bladder, tenderness is felt and the breathing becomes more difficult.

"When the right hand comes in contact with the viscus sought for, the breathing is suddenly stopped and very often a cry is elicited. It is not necessary for the hand to reach the gall-bladder for the manœuvre to succeed; as soon as pressure comes to bear upon the tender mucous membrane, backed as it is by the resistant calculus, the arrest of respiration takes place. When there is no such backing, as in those cases where only adhesion or kinking of the bile duct is present, respiration goes on as before."

It is said that the X-rays will differentiate between biliary and pancreatic calculi.

Case 5.—S. H., female, aged 61, admitted into the London Homœpathic Hospital, under the care of Dr. Washington Epps, on February 8, 1905. Patient has had no previous serious illness. During last June had an attack of vomiting, which lasted about a week, but none since. Six months ago had some difficulty in walking for ten days, when she was given some medicine at a nerve hospital, which patient thought brought on the present illness, which began three months ago. Since then she complained of pain in the lower part of the abdomen, and says that food seemed to rest in the epigastrium as if it could not pass downwards. She first noticed herself yellow about six weeks ago, and the motions of a clay colour and white for two months. No hæmorrhage. Has had poor appetite, and losing flesh for three months.

Present condition.—Skin : deep yellow colour. Liver : enlarged, vertical measurement 5¾ inches ; edge not felt ; muscles very resistant. Stomach : slight splashing elicited. Urine : brown colour, acid reaction, specific gravity 1018 ; no albumen ; no sugar ; green reaction on addition of nitric acid.

February 15.—After the bowels had been relieved with soap and water enemata the surface of the liver was felt to be quite smooth and the edge regular. Weight, 6 st. 13¼ lbs.

Febuary 23.—Cammidge's test was applied to a sample of urine by Dr. Watkins, and a few very fine crystals were obtained in A tube, but none in B tube.

February 25.—Dr. Watkins again applied Cammidge's test and obtained a copious deposit of crystals in A tube and a few in B tube, but none in C tube.

March 16.—Coffee-ground vomit, which reacted to guiacum, but on microscopic examination no blood cells were found, and the Prussian blue test for blood also failed. Weight, 7 st. 3½ lbs.

March 21.—Coffee-ground vomit continues, but was much relieved by ipecac. 3x. At a consultation to-day it was agreed that the patient was suffering from carcinoma of the abdomen.

March 23.—Patient died to-day.

Post-mortem examination was made by Dr. Frank Watkins on March 24. Permission to open the abdomen only was obtained.

Stomach.—Some dilatation of the stomach was present ; the mucous membrane showed the presence of gastritis, with petechial patches in places.

Intestine.—A new growth, the size a hazel-nut was found in the mesentery of the small intestine ; the mucous lining of the duodenum was ulcerated. The hepatic flexure of the colon was adherent to the gall-bladder and under-surface of the liver. There were numerous new growths—the size of filberts—affecting the appendices epiploicæ of the sigmoid flexure ; and a larger one about the size of a walnut in the great omentum ; all of these secondary growths contained small hæmorrhages. The transverse and descending colon were filled with hard scybala, and there were also a few in the ascending colon ; here they were flattened and marked by ridges which suggested they had been marked by the valvulæ conniventes during their passage through the small intestine. The omentum contained much fat.

Peritoneum.—The peritoneum contained much bile-stained, turbid serum ; this lay free in the cavity, and was not loculated. Behind the peritoneum were numerous small hæmorrhages, but no appearance of fat necrosis anywhere.

Liver.—The liver was large, smooth on the surface, bilestained, and appeared to be of normal consistence. The surface was marked with patches of hepatitis, and one small nodule the size of a pea was observed on the upper surface and removed for microscopic examination. The gall-bladder was very much enlarged but almost empty ; there was no communication with the cystic duct ; the latter was much dilated and filled with dark brown fluid. No gall-stones were present.

Spleen.—The spleen was normal.

Pancreas.—The pancreas was invaded by a hard new growth as large as a cricket ball ; on section it was of a yellow colour, thickly interspersed with small hæmorrhages.

Kidneys.—The kidneys were somewhat larger than normal and bile stained. The capsules stripped readily, leaving a smooth surface. Several small cysts were present in each kidney.

Microscopic Report.

Section No. 593, taken from the tail of the pancreas.—This is a schirrous carcinoma, the cells being more or less spherical.

Section No. 594, taken from the head of the pancreas.—This is also a schirrus, but shows active growth in places, and here the cancer cells are mixed up with red blood cells, which would indicate recent hæmorrhages.

Section No. 595, taken from the omental tumour.—This is a carcinoma of a schirrous type invading adipose tissue; hæmorrhages have also occurred here.

Section No. 596, taken from nodule in liver.—Similar cancer cells are infiltrating the liver tissue; little or no fibrous stroma is present. The capillaries in the neighbourhood of the nodule are intensely congested, and the liver cells are pigmented and fatty.

A notable feature in Cases 3 and 5 is the presence of haemorrhages in all the new growths, with the exception of the nodules in the livers, where the surrounding tissues are acutely congested in both cases. I do not think that the condition can be fully explained by the disintegration to which malignant growths are liable; the occurrence of hæmorrhages in a schirrous cancer is not frequently observed, and in the latter of the two cases they are constant in all the growths. Another factor must be sought for, and it has occurred to me that it may be due to the auto-destructive effects of the secretion from the cancerous pancreatic cells which is poured in to the surrounding tissues and either dissolves the walls of the blood-vessels, which results in hæmorrhages, or it causes so much irritation that it produces the intense congestion as seen in the livers. If this be the true explanation, it would, in a measure, clear up the etiology of pancreatic haemorrhage in general. It is only under physiological conditions that the pancreatic juice is unirritating to the organism; under pathological circumstances it produces destructive effects, for example, as is seen after contusion of the pancreas from traumatism, or where a surgical wound becomes infected with pancreatic juice, or where regurgitation of bile into the pancreatic duct occurs as the result of the lodgment of a gall-stone in the ampulla of Vater. Experimentally, hæmorrhagic pancreatitis has been produced by the injection of bile, bacteria, acids, and alkalies, into the pancreatic duct.

So far as I know, we have no explanation why, under normal circumstances, the pancreatic juice causes no destructive effects. In the case of the stomach it used to be thought that the peptonising effect of the juice on the gastric tissues was negatived by the circulation of the alkalies in the blood, but this argument could not be maintained when it was pointed out that the pancreas does not digest itself, its ferment being effective in an alkaline solution. It is evident that the gastric and pancreatic cells are endowed with vital functions which resist the action of proteolytic ferments, and such an explanation is not to be refuted by such experimenters as Cl. Bernard, who digested the leg of a living frog by placing it into a gastric fistula of a living dog, or as Pavy, who digested a large part of a rabbit's ear in a few hours by placing it in a similar environment. To sum up, it would appear that anything which disturbs the vital function of the pancreatic cells may be followed by hæmorrhage and other destructive effects.

Before bringing my paper to a close, I should like to draw a few practical conclusions.

During their clinical course there was some reason for supposing that three of these patients were suffering from carcinoma, and yet the weekly record showed an increase of weight, instead of the usual steady decline; this, of course, would have been very misleading had it been inferred that it meant an increase of flesh; in all of these cases it was due to the occurrence of ascites.

It is unsafe to diagnose primary cancer of the liver unless one can feel with certainty the nodes, nor is an undue prominence of one lobe sufficient, for, as in Case 5, this may be due to a larger tumour of the pancreas pushing it forwards. Primary cancer of the liver is a rare disease, and before it is far advanced the tumours can be almost always readily felt. If jaundice is present without an obvious cause in a patient who has reached middle life, and no nodes can be felt in the liver, some other cause must be sought for.

It is early yet to generalise as to the importance of Cammidge's crystals. He says he has found them in cases of adenitis, pneumonia, and cancer of other organs than the pancreas. I have found them in both reactions in two samples of urine which contained heavy deposits of uric acid crystals, so that it would appear from the evidence before us that their occurrence indicates the presence of some serious error of metabolism, and when the reaction is obtained in No. A tube only, it may possibly mean that the metabolic disturbance is specifically due to disease of the pancreas, but the experience of a Cammidge is required to particularise the pancreatic disease.

In conclusion, I wish to thank Drs. Galley Blackley, Byres Moir, and Washington Epps, and Mr. Knox Shaw for their kindness in allowing me to use their clinical notes.

The paper was illustrated by the following microscopic specimens:—

(1) Section of carcinoma of pancreas.
(2) Section of secondary deposit in liver.
(3) Section of hœmorrhagic pancreatitis.
(4) Section of fat necrosis, showing fatty acid crystals.
(5) Cammidge's pancreatic crystals from urine.
(6) Crystals of gluco-sazone.
(7) Crystals of lacto-sazone.

Dr. **Dyce Brown** said members had been favoured with three interesting and valuable papers on an important subject, and he thanked the readers of them for the large amount of information to be derived from them. The treatment of diabetes by the old school was almost entirely diatetic. On the other hand, homœopathists could show great benefit from their method. The remedies which had been mentioned in the papers were those which he himself had found of most value; chiefly uranium nitricum in the third decimal, and afterwards in the second decimal, phosphoric acid and lygopodium. Arsenic was also valuable. Each case must be treated according to the indications for an individual remedy. One medicine which Dr. Blackely had not mentioned was of great service in certain cases, viz,, hydrastis, *i.e.*, where the gastric functions were deranged, as shown by the coated tongue, loss of appetite, a bad taste in the mouth, and difficult stool. But the most interesting point about the disease in the matter of treatment was the diet. He (Dr. Dyce Brown) was utterly heterodox in regard to the adoption of a strict diabetic diet. He did not agree that that was the essential part of the treatment, or that it was of any real value in the *cure* of the disease. He looked upon the excretion of sugar in the urine as only a symptom of the disease, not as the disease itself, nor indeed as an essential part of it. The main question was, what caused the excretion of sugar? That question had not as yet been satisfactorily answered. Evidently there was some condition behind the mere symptom of sugar being excreted in large quantity. The system could not assimilate carbohydrates. What caused that lack of assimilation? This was a condition which had not been discovered. He thought it probable that some deep-seated nerve lesion was at the root of the trouble, but which had never been satisfactorily proved to exist. In practice the physician prohibited carbohydrates at one end, by putting the patient upon a strict diet, the result was a diminished amount of sugar excreted. It was easy to prevent a flow at one end by cutting off the supply at the other, but were we nearer to the cure of the disease by doing that? He maintained that we were not, and his experience bore out that opinion. The result of a strict diet was that the patient became weak, lost flesh, went steadily downhill, abhorred his food, and became miserable, without advancing the cure in any way. Therefore a number of years he had gone entirely on heterodox lines, not dieting the patient strictly at all, but letting him eat in the ordinary way, merely telling him to take as little sugar as possible consistently with the necessity of using a certain amount for cooking purposes. His patients improved on such a plan of diet. At the same time the homœopathic medicine was given. Instead of going downhill in the matter of strength, patients improved, they enjoyed ther food, slept better, and put on weight. In every way the general condition of the patient was improved under that treatment. Under the homœopathic *régime* there was diminution of sugar, or if not diminution there was no increase of that substance in the urine compared with its quantity when the patient was first seen. Since he began that method of treatment he had never seen cause to repent it. One patient who was under his care in the country wrote to say she was intending to come to London on the following Saturday, and that she was sure he would consider her greatly improved, as she felt so much better. During the first week or so she was weak and thin, and had been sleeping badly, and not relishing her food. But now the sugar had diminished in quantity, she was stronger-looking, and better in every way, as her friends remarked. She now slept well also, enjoyed her food, and was not troubled with constipation, whereas formerly she was constantly taking pills for the purpose of keeping her bowels regular. That change was wrought upon ordinary diet, without any restriction. So long as he found such a result in his cases of diabetes he intended to adhere to his present plan of treatment, looking upon the excretion of sugar as merely a symptom of the disease, and regarding the real disease as one which was to be combatted by internal remedies. He was not singular in these views in the homœopathic school, as he knew that several of his colleagues adopted the same plan. Among these he instanced Dr. Burwood, who was an excellent observer and a very careful practitioner, and whom he met some time ago in consultation over a case of diabetes. He had not known Dr. Burwood's views on the subject, but at the consultation he found they were the same as his own.

Dr. Byres Moir remarked that after hearing the first two papers he thought his mind was clear on the subject, and felt he had a good deal to say in connection with his experience in the treatment of the disease. But Dr. Watkin's paper intervened, and that brilliant contribution had had the effect of turning his thoughts in another direction. Dr. Watkin's paper certainly contained much food for thought and reflection. Still, he would mention his own experience in relation to diabetes and glycosuria, not from book knowledge, but from practice. The first question was, were authors of papers and members of the Society not really speaking of two or more diseases? That was a most important matter, because in treatment all depended on the answer to that question. His experience was that two very different conditions were included under the head of diabetes, and that impression was very well supported by the cases which had been related that evening. True diabetes mellitus in children was quite distinct from the gouty glycosuria met with in adults. Yet there came a period in cases of gouty glycosuria when it was difficult to differentiate it from the other form; but in these cases there was not the same degree of polydypsia. One of his patients recently died who had been under observation fifteen years. The patient was a stout Jewess, weighing about 15 st., of a very neurotic family, and of a highly-strung and sensitive disposition. During some years prior to her coming under his notice sugar had been found in the urine at intervals, and a curious feature in some of those cases was that sugar was found in the urine one day, and yet on the next there might be no trace. But uric acid was present, and it was in big fleshy persons that one usually found this faulty metabolism. The question of diet, which Dr. Dyce Brown had touched upon, was very important. He (Dr. Byres Moir) was sure a strict diet was beneficial in those cases. He had one case a short time ago, which came to him wasted and losing flesh. He put her upon strict diet, and in six weeks she came back with no trace of sugar. He told her she was so much better that she could relax her diet, and she did so. She came back a month later, and he found sugar present again. He warned her to be careful about her food, but the relapse frightened her, and she kept to the diabetic diet. She again came to see him, looking ill. He found no sugar in her urine, the weakness having been entirely due to the strict diet. On putting her on to ordinary diet she had enjoyed good health for five or six years. He thought cases of this kind should be put upon phosphoric acid with strict diet, and when the sugar had been reduced, ordinary diet could be resumed. There was another question about diet which appealed to him. A patient whom he had watched for years had the same trouble, sugar in the urine one day, and acid on another. Last year this patient was in Greece, and for gouty symptoms a friend persuaded him to take a diet by which gout was treated in that country, namely, eating Turkish delight, and that only, except water and a cup of coffee. The patient said he had never felt so well in his life as when taking that, and when he returned he was better than he had been for years. Cabmen and other drivers in the streets preferred Turkish delight for keeping away the cold, and probably these men were suffering from gouty glycosuria. In the case of diabetes in children there was an entirely different condition. The first form he believed was due to faulty metabolism, but in the second form there was something wrong with the internal secretion—whether of the pancreas or of the thyroid he could not say—and the sugar was then derived from the proteids of the body. Dr. Bodman mentioned a rapidly fatal case in a boy. A short time ago a case came under his (Dr. Byres Moir's) notice, in a girl of 17 years of age. On Friday she was in the country, having been, apparently, in perfect health, and in the afternoon played hockey. On Saturday her mother, who was a nervous woman, noticed that the girl did not look well, and had a doctor to see her. She had white tongue and seemed heavy, and not her usual self. Sugar was found in the urine. As Dr. Moir had seen the girl previously, she was brought to him in London. He found her breath strong, that she was wasting rapidly, and was passing large quantities of water. He gave the worst prognosis he could, and said he would like Sir William Roberts, who had been recommended to the patient, to see her at once, as he did not think she would live long. The girl died on the Sunday. He agreed that in such a case as that a great deal of harm would be done by a strict diet, for by that means the chance of the patient getting better was taken away.

Dr. Robinson Day confined his remarks to a few cases, each of which illustrated some particular feature of the disease. There was so much confusion of thought as to the real cause of the disease that it could be readily understood why some physicians obtained results very different from those of others. One often met with a case of physiological diabetes or physiological glycosuria, where considerable quantities of sugar were passed, and which might have been mistaken for genuine diabetes, although no attendant symptoms were evident. With regard to the disease in children, he could quote some figures from Holt's book, in which several authors were cited who had met with large numbers of cases. Pavy found that out of 1,360 cases only eight were under 10 years of age. Prout, out of 700 cases, had only one under 10 years. Myers gave 380 cases, only one of which was under 10. Not long ago a girl of 13 was brought to him severely ill with diabetes. She had been to Dr. Pavy previously. The disease had come on insidiously during the last four months. The chief symptoms noticed were lack of energy and wasting. The local doctor, at the second interview, hearing that she was very thirsty, examined her urine, and found a large quantity of sugar. Dr. Pavy pronounced a very grave prognosis—only eighteen months to live, and the girl was brought to Dr. Day. The urine, on three separate analyses, gave 33, 37, and 39 grains of sugar. He prescribed phosphoric acid, but it was a rapidly progressive case. She improved after the phosphoric acid, but it was soon found impossible to keep her to a strict diet. She lived for four and a half years, and latterly used to eat almost anything, but always large quantities of meat. She finally died of coma, which came on very suddenly without any warning, and while her parents were away from home. The family history was instructive, phthisis was marked on the father's side, two of the patient's sisters having died of it; and a connection with phthisis was not infrequent. He had met cases of glycosuria associated with phthisis when he was at Brompton Hospital as house physician. Another case was that of a body, aged 18, where the disease was traumatic in origin, the boy having hit his head against a chandelier. That gave great trouble at first, from severe pain in the head, and subsequently glycosuria developed, and in spite of treatment it ended fatally. The boy was previously healthy. Another case which came under his notice was one in which there was death from coma. Coma was the first indication of anything wrong. It was supposed at the time that the patient must have taken an overdose of laudanum, and not until sugar was discovered in the urine was the cause known. Another instance was that of a boy, aged 15, who acted as newspaper boy at a Smith's stall, where his appearance as a "living skeleton" attracted attention. He (Dr. Day) spoke to the boy on the station, and was told that he had diabetes and was under treatment at a hospital. Ultimately the boy disappeared; but he seemed to have mental energy so long as he had any strength left. The next case was that of a gentleman, aged 61, who had had diabetes for ten years. So long as he lived carefully he went on well. He came over to England without sufficient clothing, and on May 10 caught a severe chill; after that the disease came on with increased violence. The temperature sank, and that was a grave omen when associated with sugar. There were 19·3 grains per ounce of urine, the pulse rate was increased, the temperature continuing subnormal. He tried transfusion in that case, and he had the advantage of seeing Dr. Dyce Brown in consultation. The diet was modified in accordance with the views of that gentleman, and phosphoric acid and belladonna were given chiefly. The patient rapidly became comatose.

Dr. **Byres Moir** remarked that the mother of the patient he had referred to weighed 24 st., and that an aunt had just died of diabetes. So the family history in that case was very strongly in favour of the occurrence of diabetes.

Dr. **Neatby** expressed his warm thanks to the authors of the papers. Until he saw Dr. Blackley's synopsis he had never heard of "conjugal diabetes," but it brought to his mind cases of glycosuria in two elderly people whom he had had an opportunity of watching. Both were thin persons. The husband developed carbuncles on the nape, and shortly afterwards the wife developed boils about the vulva. The man lost all his sugar, and eventually died from an attack of bronchitis. The woman had persistent glycosuria and loss of flesh, developed vertigo, then mental delusions, and died from acute mania. Dr. Moir had gone to the root of the matter in regard to diet; there were different diseases giving much the same symptoms, and it was of no use to make fixed rules as to diet; in fact, the same patients might require different diet at various times. He had observed the truth of the advice he received from Dr. Sutton in his student days to be very chary about modifying the diet of elderly people. So he encouraged such patients to eat with reasonable freedom. But even this advice must not be slavishly followed. He remembered one case where it was prescribed, and after a time he noticed that the health had greatly deteriorated, and the patient became so weak that he could scarcely walk across the room. He then found that the sugar had increased from 50 to 1,400 grains a day. He was therefore put upon a very rigid diet, and very rapidly recovered his tone and voice. The patient was now over 80 years of age; he saw him occasionally, and he was quite well. While that patient was under observation, with thirst, a red, parched tongue, and polyuria to the extent of 100 ozs., he also suffered from an enlarged prostate, and, on theoretic grounds, he thought testicular extract might do good, but he had not heard of it having been used. He also gave adrenalin, because the frequent use of the catheter caused considerable bleeding. That combination brought about a remarkable improvement in the patient's condition. He also had had a case which bore upon Dr. Watkins' paper, and was ultimately supposed to be acute inflammation of the pancreas. He was called to see a patient of Dr. Croucher, of Eastbourne, for what appeared to be acute intestinal obstruction; there was a rapid pulse, great abdominal distention, and constant vomiting and cyanosis. The abdomen was opened, and the intestines carefully inspected, but no obstruction was found, though there was much thickening about the head of the pancreas. The patient died a short time afterwards, and the autopsy showed acute inflammation and much swelling of the pancreas.

Dr. **Stonham** asked whether the acid in the blood was not in great measure due to the decomposition of the sugar, and whether that was not an argument in favour of strict diet. Where the blood was obviously saturated with acid, and there was danger of the onset of coma, surely the diet should be strictly limited, especially as to sugar. He would like to hear if any one present had had experience of nitrate of silver in diabetes it had been recommended by different authorities in homœopathic literature. The pathogenesis of nitrate of silver showed a desire for sugar, and complaints were made worse by taking sugar. Another symptom was polyuria, but not, he believed, glycosuria.

Dr. **Macnish** referred to a patient who had suffered from diabetes of a pronounced degree, and had a very large axillary abscess. She was comatose when he was called to see her, and, from the symptoms, he gave pyrogenum 30. She was now having rhus aromatica. Though the sugar was still in excess she was comparatively well.

Dr. **Blackley**, in reply, said he had been somewhat surprised at Dr. Dyce Brown's sweeping condemnation of restricted diet for diabetics. He thought Dr. Dyce Brown must at times have had cases which had been on a restricted diet for a long time and done very well, but who, on some slight indulgence in sugar or other carbohydrate, had had a relapse and had manifested far more sugar in the urine than could be accounted for by the quantity of sugar ingested. It appeared as if the system were in a state of unstable equilibrium, so that very little indulgence was sufficient to upset it. He himself frequently had a feeling that, after all, it was not worth while strictly combating the disease, and that the patient might as well be allowed to enjoy life, or the little which remained to him; but those feelings could not be indulged in practice. He was also surprised to hear Dr. Moir say that the obese glycosuric was not usually a thirsty person. That he thought, was precisely the type of person who was thirsty, and instanced the case of a man at present an inmate of Hahnemann Ward. He now weighed 18 st., but less than twelve months ago turned the scale at 20 st. He was passing from six to nine pints of urine, containing a large proportion of glucose. The quantity of liquid ingested was never less than six pints, and, if allowed, the patient says he could drink twice the quantity. He agreed with the idea of there being at least two essentially different diseases. He had no experience of argentum nitricum for the disease.

Dr. Bodman thanked those who had discussed his paper. One pint of saline solution was injected, but, as the patient was moribund and practically dying, no further quantity was used. The general opinion seemed to be that transfusion was but a temporary measure. Since Mr. Dudley Wright has shown that the effect of acids is to increase the alkalinity of the blood, while the latter is greatly lowered previous to and during the occurrence of diabetic coma, one would except more result from the administration of phosphoric acid.

Dr. Watkins, in reply, said that in a case which was under the care of Mr. Wilkinson, of Windsor, he made examinations of the urine for Mr. Wilkinson several times. The first time there was about 5 per cent. of sugar in it. The following week it only just gave a reaction to Fehling's solution. Other samples since received were free of sugar. Two drops of adrenalin solution were given three times a day. He thought one other organ was sometimes at fault in the disease under consideration, besides those mentioned by Dr. Moir, namely, the kidney. The phloridzine glycosuria differed from all other kinds in two respects: the blood contained less glycogen and glucose than normal, and also gave no reaction with Williamson's and Bremer's tests. These tests are constant in all other kinds of glycosuria. The conclusion was that the kidneys had lost their power of damming back the sugar in the blood. Clay, Paget and Co. were making a milk which contained no lactose, and he had two breads highly recommended to him because of their palatability, which contained no starch. They were called protein and casoid. He thanked the members for the way they had listened to and discussed the subject. *Journal British Homœopathic Society*—July, 1905.

Acknowledgments.

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সরল গৃহ চিকিৎসা।

গৃহে গৃহে হোমিওপ্যাথিক প্রচার উদ্দেশ্যেই এই পুস্তকখানি সরলভাষায়, সুলভ মূল্যে প্রকাশ করা হইয়াছে; এই পুস্তকে নূতন ব্রতী চিকিৎসকদিগের জন্য আমরা প্রত্যেক পীড়ার নির্দ্দিষ্ট ঔষধগুলির সচরাচর ব্যবহৃত ক্রম উল্লেখ করিয়া দিয়াছি, গৃহস্থ ও শিক্ষিতা বামাগণ পর্য্যন্ত ইহা দেখিয়া সহজে তাঁহাদের সন্তান সন্ততিগণের চিকিৎসা করিতে পারিবেন। মূল্য—৸৹ আনা মাত্র।

ওলাউঠা চিকিৎসা।

ওলাউঠা বা কলেরা অতি সাংঘাতিক পীড়া, হোমিওপ্যাথিক মতের চিকিৎসাই ইহার একমাত্র উপায় তাহা বোধ হয় সাধারণকে আর বুঝাইতে হইবে না, তবে প্রথম হইতে রীতিমত ভাবে চিকিৎসার আবশ্যক। সেই জন্য প্রত্যেক গৃহস্থের একখানি কলেরা পুস্তক ও কিছু হোমিওপ্যাথিক ঔষধ রাখা কর্ত্তব্য। রোগীর শয্যাপার্শ্বে বসিয়া বড় বড় রাশি রাশি পুস্তক হাতড়ান অপেক্ষা ইহা হইতে অতি সহজে, অতি শীঘ্র, রোগের লক্ষণ দেখিয়া ঔষধ নির্ব্বাচন করা শ্রেয়ঃ, ইহার ভাষা অতি সরল, মূল্য—।৵০ আনা মাত্র।

সাধারণ মূল্য—মাদার টীং প্রতি ড্রাম ।৵০, ২ ড্রাম ॥৵০, ১ম হইতে ১২ ক্রম পর্য্যন্ত ।০, ২ ড্রাম ।৵০, ৩০ ক্রম ।৵০, ২ ড্রাম ॥০, এককালীন ৫৲ টাকার ঔষধ লইলে শতকরা ১২॥০ হিঃ কমিশন পাইবেন। পত্র লিখিলে সচিত্র ক্যাটালগ পাইবেন।

বটকৃষ্ণ পাল এণ্ড কোং।

গ্রেট হোমিওপ্যাথিক হল, ১২ নং বন্‌ফিল্‌ডস্‌ লেন,—কলিকাতা।

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NEED OF AN INDIAN HOMŒOPATHIC PHARMACOLOGY.

II.

(Continued from page 446.)

16. *Adiantum aureum* is found in Europe, America, and in other parts of Asia besides India. We have Adiantum capillus-veneris, A. caudatum, A. flabellulatum, A. lunulatum, A. pedatum, and A. venustum. It should be said that Adiantums are ferns. A. capillus-veneris is the Maiden-pair fern. It is used with the other species in the so-called *sirop de capillaire* of Europe. A. capillus-venerus is generally brought from Nepal, and can also be found in the plains of Bengal. A. caudatum is found in many parts of India. A. flabellulatum and A. pedatum are closely allied species and generally seen in the forests of the Himalaya. A. lunulatum is the common fern of Bengal. A. venustum is the common form of the North-West fern of India. *A. lunulatum* would serve our purpose instead of A. aureum.

17. *Adonis vernalis* is mostly found in the western Himalaya from Kumaon to Kashmir.

18. *Aesculus glabra* is a North-American plant. Its another name is Pavia Ohioensis, or Ohio buckeye being found in the plains watered by the Ohio river. We have its substitute in Aesculus Indica or Indian Horse chestnut.

19. *Aesculus hippocastanum*, Horse chestnut, is the inhabitant of Central Asia and North America. In North India it is cultivated and can be found for use. Another variety of Aesculus is found mostly in Assam, the Khasia hills and Burma. It is Ae. Punduana or Ae. Assamica.

20. *Agaricus* is an important genus of fungi. It is divided into five classes. 1. Leucospori are with white spores. 2. Hyporhodii with pink spores. 3. Dermini with brown spores. 4. Pratellae with purple spores. 5. Coprinarii having black spores. Apart from the botanical division according to the colour of the spores, they are classified in other ways. *Agaricus emeticus* is a small species found in the woods of Europe. *A. campestris* or the Mushroom found in India is eaten indiscriminately. It has many varieties but not generally distinguished. Dr. N. Chevers in his Indian Medical Jurisprudence mentions a case of poisoning by Agaricus campestris. He considers that one of its varieties is as poisonous as Agaricus muscarius containing the poisonous principle muscarine. The Bengal mushroom is considered poisonous by Hindus and Mahomedans, though many people use it for food. A. igniarius and A. albus are the Punjab fungi. A. igniarius has another name Polyporus igniarius and is identified with Polyporus officinalis in India.

21. *Agaricus muscarius* or Fly agaric, Bug agaric, is found in Europe, Asia, and America. "A. muscarius or fly mushroom is most frequently found in England in fir or beechwoods. It has a rich vermilion pileus (cap) studded with white or slightly yellowish warts, white gills, and tall, white stem, swollen at the base into a bulb, and furnished with a ring a short distance below the pileus. This fungus is used in Siberia as an intoxicating agent, and one or two suffice to produce pleasant intoxication for a whole day." The difference between A. muscarius and A. campestris is that the cap is white, dry, silky, and squamose of the latter, while the former has rich vermilion cap studded with white or yellowish warts. It is a well known fact that all mushrooms contain some kind of poisonous principle or other, not excepting the edible species.

22. *Agaricus phalloides* is Amanita bulbosa, found in Europe and North America. Amanita bulbosus and Amanita vulvaceous are also found in India. Another variety of slightly poisonous type, far less than A. phalloides, is found in Bombay. It is called Agaricus ostreatus, and used locally in cases of salivation. It grows on the stumps of old jack trees.

23. *Agave Americana* or the Century plant, the American aloe, has been naturalised in India. The peculiarity of the Agave is that it grows plentifully both in the tropical and temperate climates. Its Bengali name is Jangli or Bilati ananash (anarash). The plant serves the purpose of hedges being intervened by Cactus. In some places they are found in clusters showing their isolated life. There are other varieties of Agaves but they are used more for their fibres. A few of them are subdivisions of A. Americana.

24. *Agnus castus* is generally found in Europe in the Mediterranean shores, Provence and Greece. In Asia, its place is Asia minor and Central Asia. India is without the plant. It may be cultivated in sub-Himalayan regions.

25. *Agraphis nutans* is another European plant which remains unobserved in India.

26. *Agrostema githago* is found in Europe but not in India. The ripe seeds are used for tincture. As such they are available in India.

27. *Ailanthus glandulosa* or the Tree of Heaven is found in India. It is wrongly called here the Japan Varnish tree. The name of Goetterabum signifies the Tree of the Gods. Its original habitation is Japan, and from that country it has been introduced in Northern India. It is the avenue tree of India, Europe and North America, being lofty and shady.

It has other varieties, Ailanthus excelsa, which is observed in the North-west provinces, (including a portion of the Panjab,) the Carnatic and Behar, rarely in Bengal. A. malabarica resides in the Western Ghats.

28. *Ajuga reptans* has its place in Europe and Western Asia. It is called in Urdu Jan-i-Adam or Adam's life. Ajuga bactreosa

resides from the Panjab to Kumaon. It is also called by the name of Jan-i-Adam. So far it may be said that A. bactreosa may stand as the substitute of A. reptans for medicinal use.

29. *Aletris farinosa* or Star grass, Blazing grass, comes from North America. It is wanting in India.

30. *Alisma plantago* is found in Europe, and Western Asia. In India we have a few species, probably A. plantago is one of them.

31. *Allium cepa* is the common red onion. Palandu is its Sanskrit name, and the ordinary name in Bengal is Piyaj. There are a few species, A. cepa; A. fistulosum (the Welsh onion, Rock onion); and A. leptophyllum (the Himalayan onion.) The two varieties A. cepa and A. leptophyllum have their original habitation in India. Manu in his Smriti has abjured Palandu as food for Hindus. The Himalayan onions are now cultivated in the plains. The large (*bara piyaj*) is A. cepa. The small (chota piyaj) is A. leptophyllum. The latter have stronger pungency than the former. It would be well to use A. leptophyllum for medicinal purpose than A. cepa. The Patna onions are a better cultivated species of A. cepa than the rest, have less pungency than others and are preferred as food by Mahomedans.

A. fistulosum or the Welsh onion was introduced into Europe from Siberia in 1629. It has not the bulb like the Indian onions but has long tapering roots: In India there is another variety of onion called A. rubelium or Jungli piyaj, common in the North west Himalaya.

32. *Alium sativum* or the garlic is the Lasun or Rasun of Bengal. Its original habitation is India and it has been interdicted by Manu from use by Hindus. It is cultivated all over India. It is generally used as food by Mahomedans.

33. *Alnus rubra* is the Tag Alder of North America. *A. glutinosa* is the common Alnus of Europe. Then there is *A. serrulata* of North America. In India we have Alnus Nepalensis or the Nepal Alder and A. nitida. A. Nepalensis is found in the Himalaya from Nepal to the Panjab on the west and to the Khasia and Naga hills to the east extending to a portion of

Burma. A. nitida is confined to the Panjab Himalaya. Watt makes the following remark: "The Indian Alders do not seem to possess, in the same degree at least, the properties of the English and American species. It is probable, however, that their properties are only unknown, and that they require to be made known in order to take an important place amongst the indigenous products of the country." It remains to be seen whether the fresh bark of A. Nepalensis in the form of decoction will give to cloth saturated with lye an indelible orange colour like the American and the European species. The medicinal properties also remain to be investigated.

34. *Alnus serrulata* is an American tree. We have A. Nepalensis and this may replace both A. rubra and A. serrulata.

35. *Aloe* has several varieties. Makhzan-ul-Adwiya (the Yunani materia medica) mentions four kinds of aloes. 1. Socotrina. 2. Bokhara or Persian. 3. Indian. 4. Arabian. The species available in India are:—1. Aloe Abyssinica or Jafferabab aloes. 2. Aloe ferox or Cape aloes. 3. *A. Socotrina* or the Yemen or Moka aloes of Bombay. It so happens that the island of Socotra is not the home of the aloes that take its name. The real Socotrine aloes are A. Perryi. The so-called Socotrine aloes come from South Africa. It is known as Zanzibar aloes in Bombay. Its Hindi and Bengali name is Musabbar. 4. A. spicata is another kind of Cape aloes. 5. A. vera or Barbados aloes are cultivated in India, and in some parts of the country they have run wild. Its original habitation is North Africa. In Barbados it is a cultivated plant. It is curious that both Socotrina and Barbadensis, wrongly convey the idea of their original home. Perhaps they indicated the place of commerce of the two aloes. The Sanskrit name of A. vera is Ghrita kumarika or Ghrita kumari (ঘৃতকুমারী) and Grihakanya (গৃহ কন্যা). It has two distinct species: 1. Littoralis and 2. Officinalis. In India the inspissated juice of A. vera is considered as little inferior to A. Socotrina. At any rate both A. Socotrina and A. vera are available in India.

36. *Alsine media* is a plant of Europe and America.

37. *Alstonia constricta* or Native Quinine bark of Australia. We have Alstonia scholaris commonly known as as Dita bark in commerce. In Bengal it is known as Chhatim (ছাতিম). In VaidyakSabdaSindhu the Sanskrit name generally known as Sapta-parna সপ্তপর্ণ or Sapta Chhada সপ্তচ্ছদ does not occur. It names the tree Chhatra-parna but writes its synonym সপ্তপর্ণ Sapta-parna. The word Chhatim (ছাতিম) seems to have been derived from Chhatra-parna (ছত্রপর্ণ) and not from Sapta-parna (সপ্তপর্ণ). The tree can be found all over India, and there are a few in and around Calcutta. Clarke in his Dictionary of Practical Materia Medica writing of A. constricta says: "A. scholaris growing in India and Malabar, is probably identical in effects."

38. *Althaea officinalis*, the Marsh Mallow is a native of Kashmir and the Panjab Himalaya. Its Persian name is Gulkhair. Another kind of Althaea is A. rosea. Both A. officinalis and A. rosea are cultivated in Indian gardens.

39. *Ambrosia artemisiae folia* is an American plant.

40. *Ampelopsis quinquefolia* or the Virginian creeper, is an American ivy.

41. *Amygdalae amarae* are found in Europe, Asia, including India. It is the bitter almond. (See Prunus amygdalus).

42. *Amyris Gileadensis* is a tree of Arabia and Abyssinia. The balsam is known as the Mekka balsam. It is available in India.

43. *Anacardium occidentale* or the Cashewnut is found in India and America. In Bengal it is known by the name of Hijlibadam (হিজ্‌লি বাদাম). It was introduced from America in the Sea Coasts, South and East of Bengal. The name signifies that it came from Hijli-Kanthi (Contai).

44. *Anacardium orientale* is the Marking nut. It is an Indian tree, mostly found in Bengal, especially in the Sonthal Parganas. The Bengali name is Bhela (ভেলা) and in Sanskrit Bhallataka (ভল্লাতক). We have prepared a beautiful tincture from the fresh Marking nuts of Bengal and are using it for the last two years.

45. *Anagallis arvensis* or Scarlet Pimpernel is found in India, on the mountains of Bengal and the North-West India. In the latter province it is called Jonkmari (জোঁক মারি) or the killer of leeches. Its species Coerulea is generally observed in India. It is common in the neighbourhood of Simla. In Central India and the Nilgiri hills the plant can also be found. The word Anagallis comes from Greek *ana*, again, and *agallw*, "to make glorious or to cause mirth from its fabled virtue to remove sadness. This name was most probably suggested from the beauty of the flowers, or from the fact that as the sun rises and sets so the sparkling Anagallis opens and closes, hence the popular name Poor man's weather-glass."

46. *Anamirta cocculus* (See Cocculus) is a climbing shrub of South and East India, Eastern Bengal, Khasia hills, Assam, Burma and Oudh forests. Its Hindi and Bengali names are Kakmari (কাকমারি) or the killer of crows. It is practically used to kill fish by throwing a good number of them in a tank.

47. *Anagyris foetida* is found in Europe and Asia minor.

48. *Anatherum muricatum* or Andropogon muricatus is the Khaskhas grass. The roots are formed into mats and screens in India for cooling chambers by wetting them with water. It gives out a soft fragnant smell. The roots contain a pleasant smelling fixed oil which is converted into *Atar*. It is the Bena (বেনা) grass of Bengal.

49. *Andira inermis* is an American tree.

50. *Anemone nemerosa* is found in Europe and Asia. In India we have Anemone obtusiloba inhabiting in the Himalaya from Kashmir to Sikkim. The latter may well substitute the former in its medicinal properties. The Panjabi name is Rattanjog.

51. *Angelica Archengelica* is found in North Europe and North Asia. We have Angelica glauca from Kashmir to Simla. The Panjabi name is Chora or Chura. The dried root of A. Archengelica is used for tincture.

52. *Angophora lanceolata* is an Australian bush which yields a kind of red gum which is available in India,

(To be continued).

COMMON DISEASES AND THEIR TREATMENT.

(Continued from p. 451).

Pyrogenium is a "product of the decomposition of chopped lean beef in water, allowed to stand in the sun for two or three weeks." In the first place it should be remarked that the chopped lean meat should be preserved in a well corked or stoppered vessel so as to prevent the entrance of other bacilli besides those which are created within the vessel as the product of decomposition of the chopped lean meat. In order to have the uniformity of preparation, particular care should be taken to procure lean meat in fresh state, which should be cleanly washed in distilled water and after being chopped should be preserved in distilled water in a clean glass vessel described above. Yingling has erroneously described it in Homœopathic Physician, XIII. 402, as prepared from pus of septic abscess. According to him it is Septicaemin and not Pyrogen, the difference between them being great in the bacillary product.

It is a curious fact that the recorded provings do not show any sign of general inflammation though cases of abscess and old debilitated inflammation have been cured by it. Clarke remarks: "I have had ample opportunity of observing the power of *Pyro.* over typhoid fever, and typhoid and hepatic states, including one of discharging abscess connected with Pott's disease of spine." Further on, "*Sepsis* is the essence of the action of *Pyro.* H. C. Allen gives this indication for its use in septic states: 'When the best selected remedies fail to relieve or permanently improve'—analogous to the action of *Pso.* and *Sul.* in other conditions. Also: Latent pyogenic process, patient continually relapsing after apparent simillimum? As *Pyro.* is a product of carrion, the carrion-like odour or bodily emaciations, secretions, and excretions is a keynote for its use."

Several cases of bad ulcers have been cured by Pyrogen. Here is a curious case, how the formation of an abscess could cure the many ulcers. "Bellairs (H. W., XXXIV, 298) gave *Pyro.* 200 to an elderly woman who suffered for years with an ulcerated leg, which was riddled with deep, burrowing wounds, extremely painful and discharging freely. *Hep.*, *Sil.*, *Ars.*, *Ham.*, did no good. Under *Pyro.* once or twice a day a large boil formed on the calf of the leg and discharged its contents, after which the various ulcers healed up directly. The symptoms are better by heat (drinking hot water, hot bath), binding head, stretching out limbs, walking about, turning over or changing position."

All these facts clearly show that Pyrogen can cure septic inflammation, septic suppuration and septic ulceration. It is a medicine for all kinds of sepsis. The carrion-like discharge is a leading indication. The carrion-like smell of the body is a key-note in fever cases. Amelioration by drinking hot water (Ars.) and hot tea helps to select the medicine. Deep seated abscess of any organ not discharging its contents may be helped by the administration of Pyrogen. A case of abscess of the left ovary, with acute throbbing pain, great distress, with fever and rigors, after the use of Pyrogen produced an enormous flow of white creamy pus. It has proved a reliable help in liver abscess discharging the pus in the intestines or outwards on the surface if the abscess be superficial.

Ranunculus bulbosus has, Biting or pungent pain; pain as if parts would burst, were pressed or pushed asunder; *bruised feeling*, worse in the hypochondriac region, particularly about spleen; affection of lower region of abdomen and palms of hands; contusive pains; shootings or tearings; pains excited by touch, movement, stretching or change of position, especially in trunk and extremities; many symptoms appear at changes of temperature whether from hot to cold or *vice versa*; lassitude and pain as from having been beaten, in all the limbs.

The following symptoms are narrated of a case by Hempel and Arndt; "Krebs relates the following case of poisoning by ranunculus acris in the *Heidelberger Annalen*: A woman, seventy years old, but still vigorous, and frequently afflicted with pains in the limbs, had boiled a few handfuls of the leaves of ranunculus acris, she washed her legs with this decoction in the evening, and applied a cataplasm of the leaves to the legs during the night. Roused from her sleep by intense pain, she removed the poultice and washed her legs with water. Next morning the patient was in a high fever and suffered the most excruciating pain in the legs and feet, which had the appearance of being scorched up to the knees; the epidermis was hot, red and very painful, and portions of it were raised in bliters.

"On the third day, some parts became gangrenous, the patient trembled, fainted away on raising herself, was anxious, restless, the pulse became small and hurried, and her countenance looked flushed. On the eleventh day a critical sweat broke out, a critical urine was likewise discharged, and the sores henceforward began to improve." The above symptoms show a picture of erysipelas as well as inflammation of the muscular tissue. The application of the bulbs of Rananculus bulbosus produced in some places vesicles with intolerable burning itching. The vesicles on being opened were covered with herpetic, horny scurf. They formed holes of the size of a pin's head emitting yellow pus. They gradually spread and formed ulcers, the part underneath remained swollen.

Rananculus bulbosus has been administered in herpes zoster for the vesicular eruptions. Clarke takes from H. C. Allen the following remarks: "Muscular pains about margins of shoulder blades in women of sedentary employment, often burning in small spots, from needle work, type writing, piano playing." Clarke also says, "jerks and shocks; and sudden tearings in right fore-arm and between thumb and index finger while writing, point to *R. bulb.* as one of the remedies in writer's cramp and professional neuroses."

The occurrence of muscular pains about margins of shoulder blades from needle work, etc., and sudden tearings in the thumb and index finger while writing prove the existence of chronic muscular inflammation of a moderate type which shows signs of pain during exercise of the affected parts.

Apart from all these inflammatory symptoms, Rananculus bulbosus has the power to mitigate the suffering caused by blows in occiput, and inflammations of the diaphragm, lungs, pleura and peritoneum. Rananculus bulbosus is evidently an anti-inflammatory medicine. It is applicable to vesicular inflammations of herpes and erysipelas. In muscular inflammations affecting the nerves producing distressing pains of shooting and tearing character and which are aggravated by touch, movement, change of position and temperature. The other type has already been mentioned, which leads to chronic affections of arms, shoulder blades and fingers by constant use affecting those portions of the body with the neurotic pain.

Another kind of pain where Ranunculus bulbosus is useful is the pain in the intercostal muscles which prevents drawing a full breath. The muscular spasm is generally produced after taking cold. There may be tearing and burning in the chest and also the sensation of a knife thrust through the side and into the back. The inflammatory pain of the intercostal muscles can be relieved by the administration of the medicine. Clarke reports the following case of Dr. Dudgeon : "A lady, 27, three weeks after confinement went for a drive. The day was cold, and an accident occurred to the carriage which frightened her. In the evening she had a slight rigor, and complained of pain in left side about sixth and seventh ribs, worse by slightest movement, better by sitting rather bent forward and leaning a little to the left, pulse 120; no heat of skin. No signs of lung or pleural involvement. *Bry.*, and later *Arn.*, gave no relief, and for two days the symptoms grew worse; the patient having to be propped up with pillows, leaning forward and to the left, her head resting on her breast, not daring to breathe at all deeply. *R. bulb* 1 relieved her in ten minutes when she felt a wrench in her side and the pain was gone. She was able to lie down, slept all night, and made a rapid recovery. There were some slight returns of pain, now on one side, now on the other, but *R. bulb.* soon removed them."

Ranunculus sceleratus produces inflammation of the oesophagus on swallowing. The following remarks are found in Hempel and Arndt. "After dinner Krapf swallowed a leaf and a portion of the flower; it caused a violent and peculiar pain in the bowels. Two drops of the juice excited even a still more troublesome feeling, the entire oesophagus seemed like inflamed. He poured a quantity of the juice down a dog's throat; it became anxious, vomited, screamed; after it had been killed and opened, the stomach was found contracted, some parts of it were very red, inflamed, the pylorus was swollen and of a red-blue color, it hardly remained pervious."

The external application of the leaves produces almost similar effects to that of Ranunculus bulbosus. "Tissot relates the case of a carman, who applied the leaves to his arm, they soon drew a blister which spread over the whole arm; he was attacked with fever, delirium, inflammation of the brain, a species of hydrophobia and finally gangrene."

Raphanus wants a passing notice. The peculiar symptoms which may assist inflammation are: swollen feeling in every part even in bones; lancinations in different parts; lancinations in fleshy parts, with drawing pain in all muscles, preceded and followed by sensation as from too light a girdle; pain in all joints, painful weariness, all bones crack, worse nape; pain in loins, knees, groins, abdomen and thigh, can scarcely stand upright, can not bend knees; sensation in head, throat and chest as in beginning of a bad cold; swollen sensation in arms, hands, eyes but feet appear smaller, and wrist feels as if lashed with a whip; veins feel as if full of quicksilver; weakness with bruised feeling; stiffness in muscles; feels better when lying than when sitting; pains in bones when touched; numbness in parts near painful bones.

There is difference of opinion as to the kind of Raphanus from which tincture is prepared. Allen is of opinion that "tincture is made of the fresh solid roots of the black garden radish." Clarke advises to prepare the tincture of Raphanus sativus, the ordinary radish, as well as from Raphanus raphanistrum, wild radish. The direction is the tincture from fresh root immediately before flowering in spring. Clarke notes: "Nusser proved both the Garden Radish and the wild Radish (the former probably only a cultivated variety of the latter), and of the Garden Radish he took tinctures of the long round and black (the favourite in Germany) varieties and ate the different radishes themselves." In India we generally get the red and the whitish red varieties of Raphanus sativus. It can be remarked that the wild radish contains more acrid substances than the cultivated varieties and R. sativus loses those substances by gradual cultivation. Wild radish most probably is the parent of the cultivated species, and for that reason the uncultivated i the original variety from which tincture should be prepared. Raphanus has perhaps never been used in subacute or chronic inflammation of bones and muscles, the latter producing a feeling of tightness or constriction.

Rhododendron has sprained sensation: *bruised feeling; drawing as if in marrow, worse in bad weather; almost all symptoms reappear with rough weather* (Rhus t.); *stiffness of nape of the neck in morning in bed; drawing tearing in bone in the lumbar region; bruised pain in the back, worse during rest and in rainy weather (Rhus t.); sprained pain on the back; pain when sitting as if back had been bent too long, and as if one had been lying upon it too long; pain in the lumbar region when sitting, better on motion, with anxiety; pain in back worse on stooping; pain in bones or periosteum of the extremities, mostly in spots, on change of weather; sprained pain in wrist, impending motion, in rough weather, worse by rest.* Rhododendron has peculiar symptoms: Loud sounds re-echo long in ears; formication with sweat; pain flying about. Rhododendron should be used in inflammations which increase in cold and damp weather and the person feels better while the sun shines. Hughes remarks: "The most characteristic effects of Rhododendron are the pains which it excites in the muscular and fibrous tissues, and the swelling and tenderness of the testes and epididymis." Allen confines its scope to rheumatic pains. He says: "Rheumatic pains, especially in the periosteum of bones, worse in cold weather, better on moving (Rhus t.); these pains may affect nearly every part of the body, and are frequently associated with coldness of the extremities, especially of the feet, but the general indication is aggravation before a storm."

Perhaps it would be better to agree with Hughes in giving it a larger sphere of action than to confine its good effect within rheumatism, which is a peculiar kind of inflammation. The symptoms which serve as indication to use the remedy in rheumatism, can equally be applied to all kinds of inflammations having those characters. The sphere of using Rhododendron is comparatively limited taking into consideration the wide range of Rhus tox, which is devoid of the electric and cloudy susceptibilities.

(To be continued).

EDITOR'S NOTES.

Fever.

The disputed theories of fever have thus been briefly discussed in the *British Medical Journal* of October, 21 :

"OUR knowledge of the meaning of fever has advanced very considerably since the earlier theories as to its nature were ennunciated. Elevation of temperature has long been considered to be one of the principal signs of this condition ; the facility with which it may be detected by means of the thermometer has led in the past to considerable misapprehension as to the meaning of fever, etc., and it was an easy transition from the idea that elevation of temperature was the cause of various clinical manifestations spoken of as fever to the practice of reducing the temperature by means of various synthetic drugs—a practice which still survives in contemporary medicine, so slowly do therapeutic methods, even when based upon obviously false ideas, die out.

It was soon recognized, however, that elevation of temperature was not a constant accompaniment of febrile states, and that many of the cardinal features of the latter must occur without any rise of temperature. The occurrence of asthenic types has long been recognized and they still continue to supply surprises in the *post-mortem* room, one of the most common being the discovery of pneumonia in the case of persons who, though they had been very ill, showed no rise of temperature.

These discoveries, however, did not militate against another more plausible theory, the teleological view which saw in hyperpyrexia an effort on Nature's part to cause the death of infective organisms by developing a temperature greater than the organism concerned could tolerate. If a febrile disease was unaccompanied by elevation of temperature, then it was thought that the vitality of the individual was so low that the heat-regulating mechanism was not in good working order. It was argued that if the centres for the conservation or dissipation of heat were not in a condition to act normally, the destruction of the infective agent by the elevation of the body temperature became impossible, and that this would account for the fatal termination of so many such cases.

Dr. Bergel has published recently a rather laboured and lengthy essay reviewing the position, and has shown by reference to the work of Liebermeister, Unverricht, Ringer, Naunyn, and the more modern workers in the field of bacterial infection and production of immunity that the observations of the past can best be harmonized with our more modern conception of the nature of fever by accepting the view that, just as in health, normal temperature is maintained by the oxidation of tissues and of various foodstuffs taken in as food, so in disease the elevation of the temperature is due to the increase of oxidation dependent upon the changes which take place when toxin and antibody combine. Dr. Bergel develops the argument with judgment; he contends that this reaction depends upon two factors—the virulence of the invading organism and the reaction on the part of the hosts. Low virulence of the organism may produce only slight symptoms or none at all; in another case the infective process terminates early, aborts, as is said; in another the host does not react to the irritant, so that vigorous chemical changes do not occur, and such a cardinal sign of fever as temperature is absent, or there is no obvious affection of the pulse and respiration. In different patients the cells of homologous organs are supplied with receptors which are not of the same pattern in each individual, with result that the same infective agent may manifest itself by quite different symptoms in different individuals. Applying this generalization, it is possible to understand how the bacillus entericus may produce renal symptoms in one patient, cardiac weakness in a second, and signs of cerebral irritation in a third. Dr. Bergel's essay is, in fact, an application of the theories elaborated by Ehrlich, Metchnikoff, and others.

The natural result of these hypotheses has been the endeavour to institute "causal" treatment for the infectious diseases. We know how meagre is the harvest: diphtheria, plague, small-pox and hydrophobia are successfully treated by these means but those great scourges—tuberculosis, typhoid fever, and dysentery—still manage to remain beyond the pale of successful scientific treatment. Until such causal treatment is developed for each and every infectious disease, we must have recourse to hydrotherapeutic measures, to dieting, rest, etc., the ordinary methods, in fact; but we shall do well to remember the points so carefully insisted upon by Bergel: hydrotherapy is useful and legitimate because it lessens the intensity of the chemical activity by which febrile temperatures are produced, not so much by depressing the virulence of the poison, organism or toxin, as by aiding the vitalism of the host by increasing leucocytic activity; treatment by antipyretic drugs, on the other hand, may produce a fall of temperature of the same temporary character, but this effect, unlike that produced by hydrotherapy, is purchased at the expense of the nervous and muscular mechanisms which control respiration and circulation. Dr. Bergel's disquisition may be tedious, but will well repay perusal; it is an admirable antidote to the common tendency towards treating symptoms instead of making a direct assault upon the causative agent."

We cannot be persuaded that Dr. Bergel has established the principle of causative treatment in general or particular, by his disquisition on the theory of fevers. The microbic cause cannot do away with clinical facts which mostly disagree with the crude hypotheses of bacteriology. It is not a fact that diphtheria, plague and smallpox, have been satisfactorily treated by the antitoxin principle. The high temperature of fevers has mostly been regarded as the production of irritation of the thermic centre in the brain. The loss of control may be due to many causes which remain unknown. The microbic or any other irritation may be distant causes. For they do not always produce pyrexial activity.

Phagocytosis and Immunity.

The following important discussion serves as a leader of the *British Medical Journal*, October, 21 :

"In order to comprehend recent developments in the science of immunity a knowledge of Metchnikoff's work and theories is indispensable; and the best way to understand and appreciate Metchnikoff is to read his volume on immunity, published in 1901, which "sums up the labours of twenty-five years," and contains the latest and most matured expression of his views. In undertaking the arduous task of translating this important work, and for the careful and painstaking way in which he has performed it, Mr. Binnie will earn the gratitude of many English readers to whom the original treatise has not been accessible.

The literature on immunity has of late years become so appallingly complicated, partly owing to the intrinsic complexity of the subject and partly from the confusion of an ever-increasing jargon of newly-coined technical terms, that it is a genuine relief to resort to a writer such as Metchnikoff who has the gift of expressing himself in terms intelligible to a wider audience than the inner circle of those actually immersed in some particular detail of research and controversy. Metchnikoff is essentially a man who knows his own mind; his leading ideas are clear and simple; and when he plunges into details of technical discussion and criticism he always emerges again, before the reader has had time to lose himself in their depths,[3] with a confident reaffirmation of his original standpoint. Perhaps his confidence sometimes betrays him into dogmatism; but his dogmatism never degenerates into bias; his appreciation of his opponents is sincere and often generous, though, in his eagerness to dispel the clouds of philosophic doubt from the horizon of scientific impartiality, he may sometimes decide against their views a little too categorically.

"There is only one constant element in immunity, whether innate or acquired, and that is phagocytosis." That is the keynote of Metchnikoff's doctrine. The cells which perform this function of phagocytosis occur partly in the circulation and partly in the fixed tissues. Those in the circulation are of two kinds—macrophages and microphages. The macrophages are the "large lymphocytes" of many writers, and possess a large amount of protoplasm which is not granular; the microphages correspond to the leucocytes which are often described as "polymorphonuclear," and exhibit a protoplasm filled with granules which are either "eosinophile" "amphophile," or "neutrophile." The "fixed" phagocytes occur in the spleen, endothelial and connective tissues, muscle fibres, and neuroglia; they are all macrophages, and resemble the "free" or circulating macrophages so greatly that "it is very often extremely difficult, if not impossible, to differentiate them." In protecting the animal organism against alien bodies introduced either experimentally or by spontaneous infection the macrophages and the microphages display differences in their phagocytic activity. The former seize and devour material of animal origin, such as blood corpuscles, spermatozoa, and other elements derived from animals; they also have a predilection for the infective micro-organisms which set up chronic diseases, such as leprosy, tuberculosis, and actinomycosis, and for those which are of animal nature, like the amoeboid parasites of malaria and Texas fever and the trypanosomata.[4] The microphages, on the other hand, are especially concerned in the destruction of the bacteria which produce acute infections, and play very little part in attacking animal cells, parasites of animal origin, or bacteria which set up chronic diseases. These differences correspond to differences in the soluble ferments or cytases (the "alexins" or "complements" of other writers), which the phagocytes secrete in the process of intracellular digestion. Thus 'macrocytase,' the ferment of the macrophages, is a substance which possesses a solvent action upon red blood corpuscles and other animal cells, but has little or no action upon bacteria; whereas "microcytase," the corresponding ferment of the microphages, destroys and digests easily many micro-organisms, but has little or no action upon the red blood corpuscles and other cells belonging to the animal kingdom.

The cytases are soluble ferments which are essentially intracellular; like the zymase and the proteolytic diastase of the yeasts, they adhere with tenacity to the phagocytes which produce and contain them. Immediately these cells are injured, however, they allow a part of their cytases to escape. This phenomenon is closely comparable to the formation of fibrin ferment. So long as the white corpuscles are intact, no fibrin ferment is secreted by them; but when they are damaged, as in the blood withdrawn from the animal body, fibrin ferment is at once formed and coagulation sets in. Similarly, when blood is withdrawn from the body, the contained phagocytes give up some of their cytases and consequently communicate to the serum haemolytic and bactericidal properties which, according to Metchnikoff, were not originally present in the normal plasma. On this general principle Metchnikoff explains many experiments which have been adduced to show that extracellular destruction of bacteria may take place in the fluids of the body; he maintains that this destruction is due to the presence of cytases, and that these cytases have been thrown out by the leucocytes which have been damaged by the shock associated with the introduction of the experimental material. This, then, is Metchnikoff's leading idea by which he explains the phenomena of natural immunity. "The cytases," he says, "rid the animal of the micro-organisms without the slightest observable co-operation on the part of other soluble ferments."

In the case of acquired immunity the factors at work are more complicated. Here, as a general rule, there exist, in addition to the microcytases, other substances which play an important part in the defensive action of the animal organism against bacteria. These substances are termed "fixatives"; they are not in themselves bactericidal, but by fixing themselves upon the micro-organisms they render the latter much more susceptible to the bactericidal action of the microcytases. The fixatives, too, belong to the group of soluble ferments, but present certain important differences from the cytases. They resist much higher temperatures; whilst the latter are completely destroyed at 55° C, the fixatives, to be completely altered, must be heated to beyond 60° or even 65°. They are also distinguished by a high specificity, which is never observed in the cytases. The majority of the fixatives are incapable of fixing themselves upon more than a single species of bacteria or a single class of animal cells, and only certain of them can fix themselves upon allied species or cells, such as the red corpuscles of several species of animals. On the other hand, the same microcytases are able to attack all kinds of micro-organisms, and the same macrocytases attack all kinds of animal cells.

Another important point of difference is that the fixatives are not anchored to the cells which produce them but, readily pass into the surrounding fluids, and may therefore be described as "humoral." Nevertheless, Metchnikoff strongly insists on their cellular origin, and quotes the work of Pfeiffer and Marx, who found the specific fixative of cholera vibrios in the spleen, lymphatic glands, and bone marrow at a period before any was present in the blood. The particular cells which produce them Metchnikoff confidently asserts to be phagocytes. Under the influence of the introduction of alien organisms into the body a phagocytic reaction is produced which has as a consequence not only the absorption of the micro-organisms or animal cells ingested by the phagocytes, but also a production by these same cells of large quantities of fixatives. These fixatives, being produced in superabundance as a consequence of the phagocytic stimulus, pass into the blood plasma and thence into the fluids of exudations.

Metchnikoff is anxious to dispel the misconception, not infrequently met with, that his theory of acquired immunity is fundamentally opposed to the theory of side-chains or receptors formulated by Ehrlich. There is no essential opposition, he points out, between the doctrine of the German authority and his own view that intracellular phagocytic digestion is followed by the over-production of the specific fixative, of which a part is excreted and passes into the plasma. Ehrlich simply attempts to penetrate more deeply into the mechanism of the phenomena observed as taking place between the micro-organism and the cell. "The act which we simply term intracellular digestion" is divided by Ehrlich into its constituent parts. According to him there is a combination of the fixative, on the one hand with the molecule of the micro-organism, on the other with that of the soluble ferment or cytase. According to Ehrlich, it is the amboceptors of the cells which become datached in order to furnish the fixative that circulates in the plasma. For us there is simply an over-production of one of the two ferments of intracellular digestion, without defining more exactly what constituent part of this ferment passes into the circulation. The two theories may supplement each other, but are in no way contradictory in principle." The one important point in which they do not accord is, as Metchnikoff makes clear, that whereas Ehrlich thinks the "cytases" are always free in the body fluids, Metchnikoff holds that they are only free in the animal during phagolysis, and that under normal conditions they remain closely bound up with the phagocytes."

The whole argument is based on two factors. The natural immunity is obtained from the cytases and the acquired immunity is derived from the fixatives. The cytases are intracellular productions and by themselves are destructives of microbes. The fixatives are not bactericidal in their nature but they produce the susceptiblity of the microbes to be destroyed. The natural immunity is therefore essentially different from the acquired immunity. It is not said whether the cytases help the fixatives in performing the final of destruction of the micro-organismins in a equired immunity. At any rate it is clear and the theories support our viewthat the antitoxins cannot be durablein their action, for they do not produce any permanent effect by the cytases. The temporary effect of the fixatives is clearly demonstrated in the experiments performed, and it agrees with the clinical aspect.

Synæsthesia.

The Lancet, October 14, writes :

"In the *Johns Hopkins Hospitals Bulletin* for the July Dr. H. L. Smith has described a series of cases in a family exhibiting the curious phenomenon known as synæsthesia, "secondary sensations," or "associated sensations," which consists in the constant association of a sensation with another of a different kind. In a slight form synæsthesia is not uncommon or even abnormal. Many persons experience a shivering sensation at the squeak of a pencil drawn across a slate. Others have their teeth put on edge by the filing of a saw. Such sensations are described as sound feeling. Colour hearing or sound seeing, as it is sometimes called, is one of the rarer forms of synæsthesia. It consists in the constant association of colour with some definite sound. Among the earliest observers of this phenomenon were Gœthe and Hoffman. Nussbaumer first excited general interest in the subject by describing his own case before one of the medical societies of Vienna. An eminent neurologist present considered that his sensations were pathological and predicted mental disturbance but happily he was wrong. In 1881 Bleuler and Lehmann, the former of whom had the idiosyncrasy, reported that inquiries made amongst 596 normal individuals showed that 12·8 per cent. were more or less synæsthetic. Galton and Fechner have also written on the subject. Colour sensations are constant in the same person but vary in different individuals ; for example, the sound of the vowel "a" is red to one person, blue to another, and black to a third. When light instead of colour is associated with sound the phenomenon is known as "photism." When a colour or some definite image suggests a sound the condition is termed "phonism." Colour hearing may prove annoying ; the colour sensation associated with tones may destroy the strains of music and the play of colours seen while reading or writing may be most irritating. Nothing positive is known of the nature of synæsthesia ; some regard it as pathological. Heredity is certainly a factor. Males appear to be affected more frequently than females but in the latter colour sensations are more intense. Dr. Smith describes the cases of a clergyman and all his children (three daughters and two sons) who were affected. The father, aged 49 years, was a man of high attainments. Since early childhood he associated the sound of each letter of the alphabet with a definite colour. The letters f, j, k, r, and x were reddish brown; o and c were white; a, d, g, n, s, q, and u were transparent. The remaining letters were of a dull lead colour, shading down to black. Words received colour from capital letters. When a child he was laughed at by his elder brother and sisters because he asked why a certain bay horse was given "the white name of Charlie." He did not know of the affection in any of his antecedents but his sister's daughter had colour audition. He had never mentioned to her his idiosyncrasy, about which he was sensitive. His eldest daughter, aged 23 years, was clever and a teacher. She asked Dr. Smith: "Why are the keys of the piano coloured in my mind?" and "Why do I sing or play anything familiar by colour?" The sounds of the letters of the alphabet did not assume a definite form but appeared on a light background; some were transparent, most of them were opaque, and all of them were coloured. Words took their colour from the prominent initial letter sound. Thus the "g" sound in grey, grief, get, and so on, gave these words a grey tint. Yellow words had a prominent "s" or "y" sound, as sweet, yonder, and so on. Blue words had an "I" sound, as love, law, light, and the like. The higher musical tones were of light colour, the deeper ones dark, and the deepest black. She disliked some tunes, because of unpleasant colour sensations. The senses of touch, temperature, and pain were also involved. Thus, hard objects were of dark colour soft objects of light colour. Though the literature of synæsthesia is abundant few contributions have been made to it by the medical profession."

Synaesthesia is called secondary or associated sensation. The feeling is imaginary and may be based on some pathological condition, for its constancy suggests the idea. The *ordinary or auditary* synaesthesia is observed in many persons. They cannot bear the sound of filing by saw, the noise in cutting sugarcane by knife, cracking of shoe on walking, the crowing of crows, &c. It is said that Lord Macaulay had the last proclivity. The *audito optical* synaesthesia is a rare form of occurrence. The sensation of colour due to an unpleasant hearing is curious phenomenon. The association of colours with words is produced by it. They produce disgusting effect by giving unpleasant light. The *pure optical* is another form. It is an aberration of colour. Then we have *olfactory*, the smell of certain scents produces bad effect. The *olfactory-optical* produces bad effects on the eye by smell.

An Extraordinary Crime.

From *The Lancet*, October 21, we get :

"THE *Demerara Daily Chornicale* of Sept. 16th contains the outline of a charge of murder made against a young creole woman of negro blood which is remarkable on account of the nature of the crime alleged against the accused and of the motives which are supposed to have actuated her. It is also a case in which the evidence necessary to show the guilt or innocence of the accused must be of a medical nature and in which the want of power to compel a prisoner to submit to medical examination is made conspicuous. The victim, a young creole woman of coolie extraction, was found in a field at Plantation Melville, Mahaica, on the east coast of the island, with her throat cut and at the mortuary of the estate it was discovered by Mr. Francisco Fernandes, the Government medical officer, that her body had been shockingly mutilated. The woman was married and was known to have been for some time *enceinte*, and the fœtus had been removed, presumably, by the murderer. Before the post-mortem examination had been commenced a woman named Andrews and a coolie driver named Joe Sukul brought to the mortuary what they alleged to be the stillborn body of an infant, the child of a niece of the former and this body was examined and allowed to be buried without suspicion being excited. The niece, Eliza Jones, since arrested, was known to have cohabited for some time with Joe Sukul, but he, although still visiting her occasionally, had transferred his affections to another woman who had borne him a child. It is stated that Eliza had for a long time declared herself to be pregnant but as no result ensued her quondam lover had twitted her with the delay and expressed disbelief as to her condition. It is now suggested that this was feigned in order to excite his sympathy and to establish a claim upon him and that in order to clinch her story the woman Jones murdered the coolie Kissooneah, who was her intimate friend, and having invited her aunt to stay with her for her pretended confinement sent her with the fœtus removed from Kissooneah to the hospital. Ten days passed before suspicion grew and both women were arrested but Andrews has since been released and it is possible that she may give evidence against herniece. The difficulty which has arisen, and which is likely to lessen the force of the evidence on either side, is due to the fact that Jones up to the time referred to in the *Demerara Daily Chronicle* absolutely refused to submit to medical examination. British law presumes an accused person to be innocent until he is proved guilty, and as the result of this he cannot be compelled to do anything which may assist in securing his conviction. Those aware of an attitude on the part of a prisoner which an innocent person would not be likely to adopt are likely to draw inferences from it, but the jury cannot be invited to do so at his trial. It is hardly necessary to say more on the subject of the importance of the medical evidence in such an inquiry as that which is now taking place into the death of the woman Kissooneah, and it would be out of place to discuss the physical conditions which possibly may have occurred in the fœtus, in the dead mother, or in the accused, in view of the fact that the case must be regarded as *sub judice* and that such a discussion would be purely speculative. If, however, the cruel murder which beyond doubt took place is found to have been perpetrated by the person and for the motive alleged it is likely to take a prominent place among remarkable crime."

It is no doubt that the case is an extraordinary occurrence of murder. The imposition of the foetus for claiming maternity and murdering the real mothers are isingular feature in the whole affair. The judgment will unravel the mystery.

Arterial Tension and Neurasthenia.

In the *British Medical Journal* of October 14, the following note occurs :

"GODLEWSKI (*Progres Med.*, July, 1905) lays stress on the interest and importance of a careful study of the arterial tension in neurasthenia, helping the observer to separate the various forms of the malady as well as giving valuable indications as to treatment. In more than a quarter of all cases of neurasthenia the tension is above normal. Many such are the "fifty-year-old neurasthenics" of Huchard, with various toxaemic symptoms which together with the high tension are to be attributed to saturation of the blood by nitrogenous katabolites either by reason of their excessive formation through muscular or mental exertion, or because of renal insufficiency. In such cases a milk and vegatable diet is very beneficial. The neurasthenia that makes its appearance after the acute infection is also accompanied in many instances by an abnormally high arterial tension. On the contrary, those neurasthenics who are strongly predisposed by their heredity to neuropathic disorders frequently display a lowering of the arterial blood pressure. In either case, treatment should be directed to restoring the arterial tension to normal, imitating the improvement in symptoms noted when the blood pressure spontaneously finds the normal level from either extreme. Godlewski even went so far as to say that a sense of well being can only exist in the presence of a normal arterial tension."

Neurasthenia is, as the name implies, nervous exhaustion. But it is a misnomor to those diseases to which the term is applied. It is protean in its character. From the hysterical to the emotional and exhaustive symptoms, all mentally diseased characters with loss of physical energy point to a disease which is mistakenly called neurasthenia. It is the breaking down of vitality. Arterial tension generally occurs with the heavy palpitation, At other times the tension is absent. We are not disposed to side with Godlewski's remarks.

CLINICAL RECORD.

NOTES ON SOME CASES OF HÆMORRHAGE.

By A. Midgley Cash, M.D., Torquay.

These notes were made of clinical cases which have occurred in my practice, and they serve to illustrate some of the commoner forms in which hæmorrhage is apt to occur externally.

Hæmorrhage from Varicose Vein in Leg.

No 1.—Mrs. N.. æt. 30, sent hurriedly one evening about eleven o'clock. She had suffered for some time from enlarged veins in her legs. On that day she had walked a longish distance. Just as she was retiring for the night a rupture suddenly occurred in the vein, which began to bleed furiously. I got to her as quickly as possible, and found pools of blood in the passage and bedroom. The friends had surrounded the leg with bandages, which were soaked with blood, and entirely inefficacious in controlling the bleeding. Removing them, I found a round opening in the skin at the lower third of the tibia, whence the blood was issuing in jets. Raising the foot and leg, as usually advised, did not check the bleeding, so I compressed the vessel against the bone, when the hæmorrhage stopped, and then put on the spot a firmly rolled pledget of absorbent wool soaked in hamamelis, with a good handful of wool outside it, and bandaged all firmly on. This satisfactorily controlled all bleeding; she was put to bed with the leg raised. Next morning, on going round early to see her I found she had already been up and washed and dressed several children! Fortunately no harm was done. She was ordered hamamelis internally, with rest and care, for she had several threatening-looking spots on the leg. Both legs were varicose, and some of the dilated veins were dangerously near the surface. Two days later I removed the bandage, and found all right. At the spot was a fine healing sore. She was now going about her housework as usual, so I put on the bandage again to support the veins meanwhile, and ordered her an elastic stocking. Five or six weeks later she came down to see me at the dispensary, and there had been no further bleeding. Raising the leg as recommended in text-books on surgery may be efficient and sufficient in some cases to check the bleeding, when moderate in amount; and coming only from the distal end of the vein. But when severe, and flowing also from the proximal end, as in long standing cases where the valves have become inoperative owing to the dilatation of the veins, firm pressure applied directly to the bleeding spot is necessary to staunch the flow.

Epistaxis in a Gouty Subject.

No. 2.—Lieut. B., æt. 75, a tall, worn old man, had suffered from some intractable skin eruptions. Has a chronic patch of palmar dermatitis, urine contains faint trace of albumin. He complained of several attacks of epistaxis and some headache. On march 14th, 1904, I was hurriedly sent for. A violent attack of sneezing had caused the bleeding to recur. I found the blood running out of both nostrils, and on inspecting the fauces I could see it also running down from the back of the right nostril. He was choking and spitting up frequently large mouthfuls of bright coloured blood. It seemed advisable to plug the right nostril, for it was evident the hæmorrhage could not be allowed to go on at this rate. I, therefore, introduced a roll of lint soaked in hamamelis tinct. But this did not seem to reach the bleeding point, and no abatement of bleeding was attained. I then endeavoured to find the point from which the blood issued, examining through the nasal speculum, but the bony passage was too narrow to admit the speculum valves, so it was impossible to see anything beyond the anterior part of the nasal passage. Soaking the ends of two long strips of lint (14ins. by $\frac{3}{4}$ins. wide) in Squire's styptic Adrenalin solution, I pushed these well in with nasal forceps through the speculum, and packed them home with the probe, so that the whole strips were inserted, leaving only a little bit for after-withdrawal. This stopped the bleeding. With a strong reflected light from a forehead mirror, I watched the back of the throat for some time, and satisfied myself that no drop of blood passed down; I gave millefol. ℘ every half-hour, and ordered iced milk by mouthfuls only. Next day examined, and found no blood had passed, so treatment continued, and plug left in. Some pressive frontal headache was apparently due to the plug, so in the evening I gently drew out some three or four inches and cut it away. Ice compresses were applied to the nose. The diet consisted of eggs, milk, and Brand's jelly. Next day I withdrew the whole plug, and syringed out the nostrils with warm boracic lotion. There was no further epistaxis, though the mucous membrane was much injected. A nasal spray ordered of cocaine and hazeline in water for a few days. Patient has remained well since.

This was one of the most severe and persistent cases of epistaxis I have met with. There is little doubt that a degenerated condition of both blood and blood vessels, incident to his constitutional arthritic condition, and chronic renal disease, accounted for the obstinacy of the bleeding.

Post-partum Hæmorrhage following Miscarriage.

No. 3. Mrs. E., æt. 38, strong, healthy woman the mother of twelve children. Has had two miscarriages in the last fourteen months, probably owing to over-exertion. On January 19th, 1904, she aborted again, having had no catamenia for three months. Some solid matters were described as passed, but it was not proved that the placenta came clear away. However, the os uteri was closed when I saw her. She was kept in bed under observation. Within a few days she began to pass clots, the discharge then lessened, and became watery, and looked as if passing naturally away. However, two weeks after the miscarriage, while lying quietly in bed, a tremendous gush of uterine hæmorrhage occurred, which swamped the bed, and left her faint and pallid. I was sent for at once: On examination the os was found widely dilated, and the womb relaxed, and full of clot. Reaching as high as possible I could just touch a firm body, like the edge of the placenta, partly separated, and in part adhering to the wall of the uterus. She was calm, but pale and collapsed, pulse hardly to be felt. I injected $\frac{1}{140}$ gr. ergotinine subcutaneously, and gave a hot saline injection into the rectum, which seemed to do good. I sent for the nearest doctor, who kindly came at once and put the patient under the anæsthetic mixture A.C.E.

When unconscious I gradually insinuated my hand like a cone into the uterine cavity, slowly dilated it, and then got hold of the placenta, which I gently scraped and peeled away, removing it in four pieces. The uterus then contracted well. An intra-uterine douche, temperature 115° of kreoline and water was given; and then per oram a dose of liquor ergotæ. As she seemed low I gave her $\frac{1}{100}$ gr. strychnine hypodermically. She then rallied well, and soon came round; drank milk and bovril, and three hours later I found her quite comfortable. Later on, china and crocus were ordered alternately every two hours, and a warm injection of permanganate of potash in water given daily. There was no fever, and she made uninterrupted convalescence.

It is surprising how much blood a woman may lose in this way, and yet recover without any after anæmia. The hot saline injection markedly benefited this case, for the patient seemed to recover almost at once from her serious state of collapse. Probably the use of the hot fluid in its immediate neighbourhood has a good effect in increasing the contractile power of the uterus, besides the reviving effect it produces on the circulation.

Alveolar Hæmorrhage in a Subject of Renal Disease.

No. 4.—Mrs. S., æt. 50, a stout anæmic lady suffering from Bright's disease of the chronic inflammatory form. The urine was albuminous. Heart dilated and hypertrophied. Eyelids puffy, feet and legs œdematous, and commencing atrophy in both optic discs. Her state was one of mild uræmia, with congestive headaches. She came twice to Torquay, for her first stay was attended with decided benefit. On her second visit she unfortunately got into a large cold house, and coming in at the end of a long journey took a severe chill. She developed at once an exceedingly painful sore throat—the pain so acute that tears came into her eyes whenever she swallowed, and she exerted her utmost to avoid coughing. These symptoms were relieved by hepar. sulph. and lachesis. *Pari passu* with these symptoms hæmorrhage began from the gums. At first it was a general oozing which came from the lower jaw, around some stumps, but it soon increased to alarming dimensions. Hamamelis and arnica were tried, but the matter of the throat was at this time so urgent that treatment had to be diverted to it. On the third night after it had first shown, a most severe hæmorrhage occurred from the gums, and again in the afternoon following. Arnica internally and locally failed to stop it. When I saw her at 4 p.m. I found her mouth constantly filling with blood, which as fast as she spat out refilled.

In the course of the afternoon she had probably lost altogether one pint of blood in this way. The gums were extremely soft and spongy.

I cleared the clot out from the mouth, and found the blood welling up around a lower bicuspid and adjacent teeth. Small sponges soaked in hamam. tinct. pressed firmly on the gums did not check the bleeding, and finally I plugged lint firmly between and around the teeth, thereafter keeping the mouth firmly bandaged close. By this means the bleeding was arrested. Iced drinks with beef tea were given at intervals, and doses of hamamelis Ø. Not before three days was it safe entirely to remove the plugs. After this no further bleeding occurred. She went on for a time, but her advanced kidney disease with increasing weakness carried her off after her return home to the north two months later. This hæmorrhage was idiopathic, and occurred spontaneously ; it was due to the advanced kidney disease, and consequent blood deterioration from which this lady suffered. We know that in advanced Bright's disease this is frequently the case, and hæmorrhages are likely to occur from mucous surfaces, which are particularly persistent and difficult to stop.

I have at times met with sharp hæmorrhage from the socket of a tooth after extraction, when it has been necessary to plug, so as to control the flow. This is comparatively easily done, where we have the hollow socket to fill up with the plugging material. But it is another matter when the bleeding proceeds from the gums at the base of existing teeth ; here there is much less purchase for plugging, and the soft parts around do not give any satisfactory support.

Fierce Hæmorrhage from Fungating Cancer of Jaw, stopped by Iron Alum applied locally after failure of many remedies.

No. 5—Mons. L., æt. 61, an Italian courier. The disease had lasted full two years. He had been an excessive smoker of strong tobacco. A tooth badly stopped had caused irritation in the mouth, and a pimple formed inside on the mucous membrane.

In the course of a fever, while unconscious. this pimple got bitten, and a festering sore formed. This sore was diagnosed as epithelioma, and twice cut out by Mr. Christopher Heath. The disease recurred ; finally a general brawny involvement resulted of the tissues about the lower jaw, and a deep cavernous fissure formed, from which gushes of alarming hæmorrhage occurred without the least warning. The facial artery was probably involved in the cancerous growth. Tying the common carotid might have been effectual, but the spread of the disease to the glands and tissues far down the neck would have made such an operation exceedingly difficult, whilst the low exhausted state of the patient also contra-indicated the operation. Hydrastis, condurango, and aurum iod. were given internally for the general disease, and externally liq. ext. hamamel. with tannic acid was applied on lint plunged into the cavern. Afterwards matico powder on absorbent wool was used with but little effect. Great swelling of face and neck occurred from pressure on facial veins. I must refer to some remedies given internally, which even in this extreme case had a markedly beneficial action. *Acon.* 1x notably relieved the atrocious pressure pain, from which the patient suffered. *Conium* greatly helped a troublesome tickling cough which tormented him. Colliquative diarrhœa from gastric absorption of putrid sanies was treated with *secale,* under which it subsided. As the disease invaded the gullet there was great dysphagia, which *Belladonna* soon removed. Finally, after, a chequered course of suffering a tremendous bleeding set in, which put all other treatment aside. Reduced and anæmic as he already was, this bleeding had now brought him to death's door. The urgency of the case demanded the instant use of the most powerful styptic possible, and *Iron Alum* powder thickly dusted on a pledget of cotton wool was pressed into the crater. This—as my notes made at the time have it—"stopped it clean," and twice later, when blood again rushed from the neck, the application of this powder in a similar way was equal to promptly stopping the flow, and presenting the patient bleeding to death. The ulceration at last laid bare the gullet and perforated its tube, so that everything came out at the open wound in the neck. The case was an extraordinary one of life being prolonged for a considerable time under terrible circumstances. The impression, however, left on all who saw the effect of the iron alum in this case was, that its action was extraordinary, and with me it stands now as the supreme external styptic where pressure and ligature are not possible of application.—*The Monthly Homœopathic Review*—September 1, 1905.

A CASE OF NEURALGIA.

By M. LE H. COOPER, M. D.

ON July 11, 1904, a lady, aged 50, of dark complexion, and active disposition, came to consult me for an intractable form of neuralgia. She was in great mental distress, owing to the fact that the symptoms had been steadily increasing in severity, and her great fear was that she might become afflicted as was a brother of hers, who suffered from neuralgia of the right fifth nerve for more than three years without relief, and finally had the Gasserian ganglion removed. The operation had relieved the pain, but it was, of course, followed by subsequent atrophy of that side of the face, and still later by softening of the brain.

She stated that for more than a year she had noticed, on touching the face over the affected area, that "twitching pains" would shoot along the right side of the nose outwards over the malar bone, and outwards and upwards over the superciliary ridge. Until recently they had only been noticeable when the face was touched, but of late they had been frequently present irrespective of this. Only the upper part of the face, as described, was affected, and in every other respect she apparently enjoyed excellent health.

In hunting about for a cause for the condition, I elicited the fact that for a long time past the patient had been in the habit of massaging the face every night. I could get no history of chill or febrile attack preceding the onset of the pains.

I commenced treatment by prescribing *Arsen.* 6x every four hours.

July 15*th*.—Slightly better, in so far that the patient is not so distressed in mind; the pain however, continues, and extreme hypersensitiveness is still present, so much so that the slightest touch on the affected area causes her to jump. This "diffused sensitiveness" led me to prescribe *Kali hydriod*, 30 t. d. s.

July 18*th*.—No improvement. Finds the pain is much worse when exposed to a hot sun, or when overfatigued. Extreme hypersensitiveness, as before.

Taking into considertion the right-sided character of the pains, and in view of my previous experiences with the drug, I now gave *Chel, m.* Q A.

August 18th.—"The pain has been steadily lessening ever since the dose, I hardly ever feel it at all now, and can wipe the face without any shoots of pain." (*Note.*—This was the first time for more than a year that this had been possible.)

From that time to the present moment the patient has not had the slightest return of the pain.

On March 20th of this year a gentleman, aged 46, of dark complexion and nervous and rather anxious temperament, came to consult me on account of pain associated with a sinus in the superior maxilla which had been discharging for many years. The main opening of this sinus was above the right upper incisor tooth; there was another into the mouth through the hard palate, and a third opened into the floor of the nose. I will not go into further details regarding the sinus itself, as I am not introducing this case to demonstrate the effect of remedies on the diseased bone, which, being tuberculous in nature and of such extent, will require treatment over a very extended period.

On first coming to me this patient explained that he had long since given up hope of the sinus being cured, and that he could put up with its presence were it not for the severe pains in the head, which prevented him from doing his work on the Stock Exchange. So severe had these pains become of late that he feared he would have to give up work altogether. His previous treatment had consisted of repeated operations for the removal of bone (though no detached sequestra could be found), together with extensive scraping of the diseased area. Iodide of potassium had been administered in large quantities, and he had also had the usual "headache drugs" —*Antipyrine*, &c.—but none of the measures employed had given any relief, either to the disease itself or the pains.

Prior to his coming under me the disease had been diagnosed as syphilitic in nature, though no early history pointed to this, and for some unknown reason no microscopical examination of the discharge had been made. Yet the first examination of the discharge which I had carried out revealed the presence of tubercle bacilli.

The main characters of the pain which he gave me were as follows: "It is all over the right side of the head and over the right eye, though not in the eye. It is much worse indoors, and often not present out in the open air. It is < at 11.15 a.m., this being probably because I commence my brain work then. There is, in addition, a drawing feeling amounting to pain in the right ear. It is not associated with nausea or vomiting."

In the hopes that by attacking the disease itself I might be able to relieve the pain, I commenced by prescribing *Ac. fluor.* 30 in daily powders. *Tub. K.* 200 to be taken once a week (these latter powders to be commenced in a week's time).

March 3rd.—Some relief to the pain while taking the *Ac. fluor.*, until the weekly powder was taken. The day following this there was more pain in the side of the head, and it has been severe ever since. *Phos.* 30, daily powders. Weekly powders to be stopped for the present.

April 17th.—Although the sinus shows signs of improvement, the pain continues. It is most marked over the right parietal eminence.

It was at this stage that I fortunately elicited the fact that there was marked hypersensitiveness all over the affected area. *Chel.* ⱷ A. the daily powders not to be resumed for two days.

May 9th.—The patient came in great delight, and gave me the following report: The day following the dose had no headache from 7.30 to 11.10 a.m., in the afternoon of the same day had slight headache for one hour, and then no headache till 7.30 p.m. ("This," he remarked, "was a wonderful day for me, the headache having previously been continuous.") The day following (19th) *had no headache till* 3.15 *p.m*; 20*th, no headache at all*; 21*st, slight headache for an hour in the middle of the day.* Then the headache went away completely till the other day, when he had slight pain after a great deal of business worry, but it was nothing to speak of. He further stated that he had been able to do his work in comfort, and that he felt a different being.

This last case is not by any means complete, for it will be many months before we can put "cured" at the end of the notes, but the effect of the unit dose of *Chelidoneum* was so marked that I thought it would be of interest if I included it in this paper.

I think these two cases bear out what I pointed out before, that hyperesthesia is a very leading indication for the exhibition of *Chelidoneum.*—*Homeopathic World,* September 1, 1905.

Gleanings from Contemporary Literature.

CONTRIBUTIONS OF PHARMACOLOGY TO PHYSIOLOGY.

BY PROFESSOR HANS MEYER.

Before I enter upon the task for which I ask your kind attention, I desire to express my hearty thanks for the great honor you have extended to me in inviting me to deliver the Herter lectures. The honor I accept, not so much for myself as for the science which I represent.

Experimental pharmacology is a science with essentially theoretical aims—a part of general biology, in which there is nowhere shown a greater interest than in America. I take especial pleasure in asserting that in this land of varied successes the understanding of abstract problems and of purely theoretical work thrives and ever grows, always extending to wider circles, filled with a scientific idealism which invites the most splendid and admirable sacrifices, spiritual and material. Your famous university and, indeed, these lectures themselves owe their origin to such idealistic impulses. And this gives me the courage and the desire to talk to you of the significance and value of pharmacology.

It is then not necessary for me to claim your attention for the practical results or for their value to the practising physician; not however, that I undervalue this important side of pharmacology. But may I not hope at this place to be able to attain my purpose most easily, if I beg your attention to the biological results which we owe to pharmacological investigations?

For the explanation and analysis of physiological function, apart from comparative physiology, stimulation and extirpation of certain organs or parts of organs serve as general methods. Experimental physiology employed to this end mechanical and physical means almost exclusively. The scalpel and scissors, electrical, thermal and mechanical stimuli have long served its purposes. The manifold means of chemistry have scarcely been utilized. Its appliances and its study belong, indeed, to pharmacology, which is, as an American fellow-worker has tersely said, 'the experimental chemistry of protoplasm.'

The drugs, that is the chemical reagents, penetrate into the interior of the organs and reach parts which are not accessible to the scalpel and the electric current. Indeed, the differential action of poisons—that which has to do with single parts of organs or single especial groups of cells—is the important part of the pharmacological method. But we must concede that it has not attained for the most part the undoubted certainty and clearness of physiological methods, for every drug which we wish to use as instrument of investigation must first itself be investigated, its mode of action first be recognized and determined. You all know well how difficult and equivocal such investigations are, and it is easily intelligible that, especially in the beginnings of such investigations, while there was no larger array of pharmacological facts supporting one another, one scarcely ventured from these to draw far-reaching conclusions.

An interesting example of this sort is the admirable investigation of Felice Fontana of Indian arrow poison, which was carried out more than one hundred years ago. Fontana was forced to the conclusion, through ingenious experiments, which resembled the much later ones of Claude Bernard, that the arrow poison paralyzes neither muscle itself nor the whole nerve, but only the endings of the latter and that, indeed, the latter must possess a structure different from the nerves themselves, of which anatomy and physiology took no cognizance. Fontana, however, did not dare to draw the right conclusion because the proof was indeed a pharmacological and not an anatomical one. Only much later was it learned that properly conducted and correctly interpreted pharmacological experimentation possesses the same power of conviction as any other exact scientific method. And it is precisely the curara poison which has led to positive physiological discoveries. By its help Bœhm and Nussbaum, through the discovery of the so-called paradoxical vagus action, discovered the vasopressor nerves and the accelerator fibres in the trunk of the vagus nerve in dogs and cats; and later, with the help of the same poison, Bœhm obtained the proof, otherwise inaccessible to physiology, that the nerve endings in the muscles possess the same capacity for fatigue and recovery as the muscle itself. The important problem of the close connection between the irritability and the conductivity of nerves was not soluble except by the aid of the pharmacological method, that is, the methodical utilization of poisons like curara, veratrin and carbon dioxide.

Formerly it was impossible to detect any physiological or morphological difference either in the arrangement or in the general structure of centrifugal and centripetal nerve tracts. But the narcosis experiments of Fraser, Alms, Joteyko and especially the more recent ones by Dixon with cocain, showed that they must be chemically different from one another, inasmuch as they react differently to poisons.

Highly important, also, are the physiological results which Langley obtained with the help of nicotin poisoning in relation to the sympathetic ganglia. He was able to show that by means of nicotin the sympathetic ganglia, and through them all the preganglionic nerves, were paralyzed, while the post-ganglionic nerves escaped. So it is possible to decide by this means whether a nerve ends in a sympathetic ganglion or passes through it, as is the case, for example, with the trigeminus fibres through the ciliary ganglion.

The study of the action of a wholly different type of poison, namely tetanus toxin, has also furnished a series of important facts relating to the field of neuro-physiology. If one injects into an extremity of a warm-blooded animal a sterile toxin derived from tetanus bacilli, there occurs, as is well known, a local tetanus, that is to say, the inoculated limb enters into tonic extension and shows, especially in the later stages of the poisoning, an increased reflex irritability, while all the remaining parts of the body continue to retain their normal position and normal reflex excitability. Now, it was possible to show that this remarkable phenomenon arose through the circumstance that the poison was absorbed by the adjacent motor nerve-ends and carried upward in the axis cylinder to corresponding centers of the spinal cord. The blood and lymph channels are wholly unconcerned in this transportation of the poison, and there consequently remains only the possibility that there is constantly flowing through the axis cylinder of the motor nerves a centripetal protoplasmic stream, reaching as far as the ganglia of the neurones. This was a previously unknown fact which must be of significance for the nutrition of the nerves and also for the torphic disturbances of the central ganglia which develop after section of the peripheral nerves. I have also found that such a centripital flow of diphtheria toxin occurs in the nerves and the same thing seems to be true of certain metals which, like lead, give rise to chronic neuritic palsies. Perhaps a stream of this kind passes also along the sensory nerves, but in any case its course is arrested by the spinal ganglia, so that the tetanus poison is here held fast and is unable to reach the sensory apparatus of the spinal cord. If, on the other hand, one injects the posterior nerve-roots between the root ganglion and cord, there occurs an irritation of the sensory pain-exciting apparatus in the spinal cord and, indeed, without simultaneous irritation of motor or reflex structures.

There thus arises the pure so-called tetanus dolorosus, which is characterized by the periodical recurrence of extremely painful seizures, excited apparently through the summation of minimal and, ordinarily, wholly inactive stimuli. It makes no difference, as regards the development of the phenomenon, whether the spinal ganglion has or has not been removed —a fact which was shown by Fletcher. In this manner has arisen the proof of the existence of wholly special pain-subserving structures in the central mechanism of the spinal cord (the existence of which was long denied by French physiologists)—structures distinct from those subserving tactile and motor functions.

Finally these investigations have brought to light another remarkable fact. In the ordinary poisoning through tetanus toxin the muscles are the seat of two distinctly different kinds of phenomena. In the first place, the involved muscles become shortened without undergoing contraction in the physiological sense. This condition may exist alone. In the resting state they show neither the electrical phenomena nor the heat production nor the muscle tone that characterizes a state of activity. They shorten only slowly and the affected extremity thus becomes stiff and gradually immobilized. If the muscles have not undergone maximal shortening, they are still capable of voluntary or reflex contraction, as in the case of normal muscles. It is only later that we see the well-known strychnine-like reflex tetanus in which the muscles are implicated in rapidly recurring, increasingly accentuated contractions. Since it is possible to show that both the phenomena are subserved wholly by the spinal cord, it follows that there are present in the spinal cord various structures, quite distinct from the ordinary motor mechanism, which determine the state of inactive tension of the muscles, that is to say, their length while in a state of rest. These tonus-subserving structures are not excited by other poisons, like strychnine, and we have here the fundamental distinction between strychnine poisoning and poisoning by tetanus toxin. Indeed, it was only by means of the latter poison that the existence of these length-regulating tonus centers in the spinal cord was brought to light.

I have spoken hitherto of the nervous system itself, but it is true that the physiology of structures closely connected with the nervous system, as the glands, heart, blood vessels and muscles, has been materially advanced through the use made of pharmacological agents. You are all aware of the progress in our knowledge of lymph formation and the glandular function, which we owe to studies of Heidenhain; and these again were dependent in a great degree upon the help of pharmacological methods involving the application of specific chemical stimuli. I shall mention the results of some more recent investigations in this same direction, in the belief that they may be less familiar to you. Very recently Wertheimer and Lepage, in Lille, reported a series of pharmacological investigations on secretion by the pancreas, which led them to important results. It has long been known that the pancreas may be stimulated to secretion in a reflex manner and also, as Pawlaw showed, through direct irritation of the vagus nerve. We know also, as a result of Starling's work, that the pancreas can be thrown into activity directly through the specific chemical stimulus furnished by the presence of secretion in the circulating blood. Now, Wertheimer and Lepage were able to show that the gland has at least two distinct mechanisms through which it is possible to excite the secretion of pancreatic fluids; first, certain structures intimately connected with the vagus nerve, which may be excited by pilocarpine, physostigmine or muscarine, or completely paralyzed by atropine; and secondly, another set of structures which are not acted upon by these poisons, being neither excited nor paralyzed by them, but which react to certain other definite chemical stimuli like secretin. Possibly the latter apparatus is part of the sympathetic nervous system; at all events the case of the submaxilliary gland has been brought forward by Wertheimer and Lepage as analogous, since in this case the terminations or the chorda may be influenced by pilocarpine and atropine, whereas the sympathetic nervous machanism remains intact. And finally, just as the salivary secretion differs according as it arises through the stimulation of the chorda or of the sympathetic nervous system, so does the pancreatic secretion resulting from the pilocarpine differ from that which is obtained through the action of secretin. In the latter case the secretion contains entero-kinase, that is to say, is able to digest albumin without the addition of succus entericus.

In this connection it may be mentioned that the use of pilocarpine has led to a physiological understanding of an entirely different kind of secretion, namely, the liberation of a gas. It has long been known that the swimming bladder of fishes contains a gas, the presence of which can hardly be explained by a process of simple diffusion out of the tissues. This fact, which we owe to the observation of Huefner, led Dreser to investigate the process of liberation of oxygen into the swimming bladder of the pike, with a view to determining whether pilocarpine and other glandular stimulants gave rise to an increased accumulation. And, indeed, he found that when fishes were repeatedly injected with pilocarpine, the content of the swimming bladder in oxygen gas was distinctly greater than in the case of the gas from the normal fishes, which permits the conclusion that the epithelia of the swimming bladder liberate a gas in a manner analogous to the liberation of secretions from true glands, and further that these epithelia are not penetrable in either direction like a diffusing membrane.

Another fact deserves brief notice in this relation. It is the interesting observation of Magnus that when ammonia gas is injected into the veins the alveolar epithelium of the lungs is not penetrable, since no trace of ammonia can be detected in the expired air, whereas after the inhalation of ammonia the gas penetrates readily into the blood through these same epithelial cells. This is merely one striking example of the many known cases in which animal epithelial membranes are penetrable in one direction for certain substances like water, salts or urea, while opposing strong resistance to the passage of these in the opposite direction. The mechanism of this regulatory arrangement has not yet been cleared up and further progress seems hardly possible without the aid of pharmacological methods.

To enter upon the physiology of the heart at this time would carry us too far. Pharmacological facts which have proved of importance in giving us our present knowledge are doubtless sufficiently known to you. We may say, however, that even in regard to the recent controversy over the myogenic and neurogenic theories of the cardiac motions and over the general character of the heart muscle, the systematic study of the cardiac poisons has contributed much that is important and, as Harnack has indicated, may perhaps furnish the final decision.

Permit me now to direct your attention, for a few moments, to some of the physiologico-chemical results of pharmacological investigations. It lies in the nature of things that the results should be numerous in a field that has to do solely with the chemical inter-relations between the pharmacological agent and the living organism. I shall not tire you with an enumeration of facts already well known. I shall refer only to a few of the more significant biological reactions which we owe to pharmacological investigation. The study of poisoning by acids led to the discovery of ammonia-production in the organism, and this in turn to the Schroeder experiments, which positively demonstrated the production of urea in the liver. Pharmacological methods have also contributed materially to the elucidation of numerous other important problems in metabolism. One of the most actively discussed problems has been the question whether sugar can arise from proteid, and this question has been definitely answered, as it seems to me, by the experiments of Rolly. This observer conducted experiments on animals which had been rendered glycogen free by means of fasting and strychnine spasms. He then brought about an increased destruction of proteids by means of fever, induced through the action of bacteria and toxines and was able to demonstrate that there occurred a new production of glycogen under these circumstances in the liver and in the muscles. As the fat-reserve of the animals had already sunk to a minimum during the period of fasting, it is clear that the source of the newly formed glycogen is to be sought in the increased destruction of proteids in the organism. The same sequence of events was demonstrated by Rolly in fasting rabbits at the time of the great destruction of proteids that immediately precedes death.

That the problem of diabetes mellitus, though still unsolved, has received light from many sides through pharmacological investigations, I need hardly state. I will merely remind you that the discovery of phlorhizin diabetes showed us a hitherto unknown capacity of the kidney to secrete sugar, that the work of Lusk and his associates led to the establishment of a definite ratio between nitrogen and dextrose excretion in diabetes, and that Blum and Herter found an adrenalin glycosuria which may perhaps throw some light on the puzzling nervous forms of diabetes.

Again, through poisoning by phosphorus and arsenic the relation of lactic and the amido-acids to the intermediary metabolism was first shown, while as regards the more intimate metabolic processes and their relation to ferment action, the toxicological experiments of Jacobi and of Wakeman have brought us important light. Through poisoning by chloral, by camphor and nitrotoluol, the discovery of glycuronic acid was made, the normal occurrence of which in the organism was only later established. Indeed, the various chemical reactions of the organism, of which we have examples in the formation of hippuric acid in the kidneys, in sulphocyanide, in methylation, in oxidation and reduction, were all of them first discovered through the action of chemical or pharmacological agents. Furthermore, as regards the location and intensity of these processes, the investigations of Ehrlich and of Herter have given us definite information. I would like to refer here to an interesting observation from Herter's studies which demonstrates with special clearness to the eye the oxygen requirements of the muscles and shows with what energy the muscles appropriate oxygen not only from oxyhemoglobin, but also from other reducible substances. Herter found that if animals receive intravenous infusions of methylene blue the pectoral muscles were soon colored deep blue, but that if during the experiment the access of oxygen was hindered by giving the animals air mixed with carbon monoxide, the blue muscles in a few seconds recovered their natural red color; they had almost momentarily reduced the methylene blue to colorless leucobase. It is also known that through the action of hydrocyanic acid the capacity of the organs to take up oxygen from the blood is much reduced or destroyed. This process also it was possible to render easily visible by the method of methylene blue infusion. As we have seen, the pharmacological method has revealed to us a series of functional characters of the organism; but its biological significance appears to extend even further. It seems possible with such methods, if only gradually, to reach a more intimate knowledge of the chemical constitution of protoplasm, and finally, perhaps, to arrive at an insight into the chemical interpretation of its functions. If, under the influence of a pharmacological agent, we observe an immediate essential alteration in the function of a cell, we have to assume that a chemical change has occurred in its vital center—in what Ehrlich has called the 'Leistungskern,' that is, the chemical center of vital activity. On the other hand, if, we have before us a gradually developing alteration, this may have been called forth in a secondary manner, through chemical changes in the reserve material or in the supporting elements of the cells, perhaps in the groups of atoms which we conceive as side-chains. Given a knowledge of the constitution and the chemical mode of action of agents operating as acute intoxicants, we should also be able to reach conclusions as to the chemistry of their point of attack, that is to say, regarding that substratum of the living substance which corresponds to the chemical constitution and action of the poison. With a similar idea in mind Oscar Loew, twenty years ago, considered himself justified in assuming the presence of an aldehyde group in the living protoplasm, basing this view on a series of merely qualitative toxic reactions like those obtainable by hydroxylamine, diamid and other substances.

An example of another pharmacological method which may, perhaps, prove of utility is the investigation of the narcotics. The quantitative comparison of the action of aliphatic narcotics (alcohol, ether, chloroform, etc.) leads to what I believe to be the unavoidable conclusion that certain fatlike substances like lecithin must be conceived as constituting integral parts of the 'Leistungskern.' It happens that one can compare with considerable exactitude in a quantitative way, the efficacy of this numerous group of bodies. This comparison has brought out the fact that the degree of activity is approximately proportional to the individual chemico-physical affinities of all these substances, that is their solution-tensions for fat-like bodies compared with their solution-tensions for watery media. From this almost rigid parallelism it follows with a high degree of probability that in the union of ether, chloroform, etc., to a fat-like substance—a lipoid—we have the origin of the narcosis of the cell; in other words, the lipoid belongs to the essential functionally active constituents of the cell. It has been urged against this conclusion that the cell lipoids occasion merely a stronger or a weaker accumulation of the narcotic which then acts on the true albuminoid life-center of the cell in proportion to the degree of this accumulation. There are, in reality, only two possibilities. First, one may assume that the narcotic operates only through its presence in life-less lipoids whence it acts from a distance, perhaps through a sort of induction, upon the living cell-center itself, without entering into reciprocal chemical action with its center. Such a view could be neither refuted nor established. But in order to explain the above-mentioned parallelism, it would be necessary, on this supposition, to invoke the aid of the very improbable hypothesis that all the different narcotic substances, compared on an equimolecular basis, exert an equally strong induction. And this hypothesis wholly fails to allow for the different influence of special groups of atoms, as, for example, the ethyl group, the methyl group, etc. Hence it is clear that such an action at a distance must remain problematical, and furnishes us no actual explanation. On the other hand, we may make the much more likely assumption that the narcotic substance enters into a reciprocal, reversible, chemico-physical action with some constituent of the 'Leistungskern' or 'life-center,' the strength of which reaction is dependent on the intensity of this reciprocal action. Then again, the law of mass action here comes into play, that is the law of disrtibution. We may even leave the lipoid for the moment out of account. In this case it would have to be regarded simply as an intermediary solvent and would remain without influence upon the equilibrium established by the narcotic between the blood and lymph plasma on the one hand and the 'Leistungskern' or 'life-center' on the other. Experiment, however, showed that the affinity of the living cell substance for a narcotic, measured by the observed intensity of action, runs parallel to the experimentally observed fat affinity of the narcotic, or, in other words, that the unknown constituent of the living cell or 'Leistungskern' must itself possess certain properties of a fatty substance, or, in short, must itself be a fat-like or lipoid body. And thus we come back to the very conclusion of which I have already spoken. I have expressed myself in somewhat greater detail than is perhaps warranted by the importance of the question. I have, however, thought such a critical discussion of the problem of some interest, as it seems of fundamental significance for the evaluation of a pharmacological analysis of this kind.

I have already said that perhaps the highest result of pharmacological investigation may prove to be the winning of an insight into the chemical nature of life processes themselves; indeed, the first important ground in this direction has already been won. You are all familiar with the important investigations of Jacques Loeb, to whom we owe a knowledge of the essential significance of the individual metallic ions, for the general life processes. But what is still more important, Loeb has succeeded in inducing very special biological reactions as the effect of chemical action. He has shown that heliotropism can be excited by definite chemical reagents such as carbon dioxide and other substances, instead of through the action of light, which is a contribution to the understanding of the mechanism of this singular reflex function. Finally, he has shown that through certain definite chemical procedures, like the action of hypertonic salt solutions, combined with ethyl acetate, the unfructified eggs of sea-urchins may be stimulated to parthenogenetic normal development, an observation which may prove of great significance for the understanding of the process of fertilization.

And with the mention of this admirable investigation, permit me to close my address of to-day.—*Science*—Friday, October 6, 1905.

FLEAS AND DISEASE.

A New and very striking interest now attaches to investigation relative to the connection of fleas with the transmission of disease, in view of the recent specific statements that have been made in connection with the transmission of leprosy by these insects. It is perfectly true that we have very little definite knowledge of the whole matter and that opinions so far expressed are almost purely theoretical. An excellent historical resume of the subject is given by Dr. Herzog in Bulletin No. 23 of the Bureau of Government Laboratories at Manila. He tells of various efforts to find plague bacilli in fleas or to produce the disease by allowing fleas from diseased rats to bite healthy individuals. Here he might have referred back to Yersin's experience in failing to find the bacilli in the blood from other parts of the body when they were multitudinous in the buboes, and he should have suggested that a flea might have a similar experience. Such a view-point might invalidate much if not most of the experimental work so far accomplished. The 'severe and just' criticisms of Galli-Valerio, made at a time when he was not even acquainted with the species of fleas infesting rats in regions ravaged by the plague, are scarcely worthy of consideration one way or the other. The only serious work on the subject was begun at Sydney, where there was a proper effort to first know the fleas and then to determine if any of the species infesting rats would also bite human beings. Investigators there found *pulex palli-*

dus common on rats. This is a very near relative of *P. irritans* and was experimentally determined as able and willing to bite human beings, as might have been expected theoretically. The singling out of this species from all the others found there on rats was a distinct step in advance.

The verdict of the Indian Plague Commission was: No evidence, one way or the other. Indeed, all the way through this discussion, a point that strikes the unprejudiced reader more strongly than any other is the startling paucity of facts—actual observations and experiment—on which all the theories, for and against, have been built. Apparently the most categorical statements are coming from men who do not know the rat fleas of the tropics and subtropics at all. Dr. Herzog adds nothing in the way of adequate experiment, but submits the description of a 'new rat flea'—*Pulex philippinensis*—which may or may not be new, since the description does not include a single diagnostic character to make possible comparisons with any other species. The photographs presented, which are exceedingly poor in detail, indicate a form extremely close to *Pulex irritans*, the flea specific to human beings, which species has, by the way, been taken from rats, cats, dogs, foxes and other animals in regions where it is abundant, a fact of striking importance in this investigation.

There are some most important aspects of the case which have as yet not been considered at all. Most fleas are epicures in their bloodsucking habits where mosquitoes are gluttons. They do not settle and gorge themselves, as do the mosquitoes, but pass rapidly from place to place and bite often. A single flea has been observed to bite so as to leave a dozen or more inflamed spots in as many minutes and yet its abdomen shows no extraordinary dilation. The flea possesses a remarkable puncturing apparatus, portions having the appearance of a double-edged saw, with an intricately developed serration. It seems likely that the flea would have difficulty in wiping its mouth clean after a meal, and indeed microscopical examination made soon after a flea has bitten will reveal blood upon its external mouth parts. If these are snipped off and teased out in a drop of water many blood corpuscles may be found, and if these occur then surely it would be possible for numberless bacilli to lodge there also. This is merely a suggestion—no one known to me has examined the matter properly. Theoretically, a flea drinking blood from a malignant buboe would be pretty likely to have a stomach well filled with the bacilli, and this is said to be the case with the plague as well as with leprosy, though what future relation material that has once passed the flea's throat may have to human beings it is for the bacteriologist to discover, if, indeed, this fact has any bearing of importance whatever. According to Herzog, Zirolia says that 'the fæces of fleas from plague-infected animals contain virulent bacilli, and that in the bodies of the dead fleas these parasites survive for a long time,' though as usual, one of the most important facts—the name of the flea studied—is not given. If a flea bites a malignant buboe and then passes to a healthy individual and inserts the proboscis above described beneath the skin, the bacteriologist is to say what chance there is for inoculation in the inflamed flea-bite, certainly a better chance than with a thrust made by a needle. Seemingly there is almost a physical impossibility that bacilli should not be transferred. In the case of leprosy, a flea which has inserted the above-described proboscis into a malignant lepra blotch is *persona non grata* so far as I am concerned—I would rather not have him transfer his attention to any part of my body, even though I be in more or less ignorance of the possibilities of the case as related to actual infection, resistance or receptivity of different tissues inoculated, etc. Such a statement as Dr. Herzog makes concerning the work of Thompson at Sydney must, it seems to me, serve as a striking call for further investigation. He says, 'Thompson observed blebs which he considered to be produced by fleas and to be the place of entrance of the plague virus, concluding that the transmission of plague from rats and mice through the intermediation of fleas must be frequent.'

The conflict of opinion all along the line has been amusing when the almost utter lack of definite knowledge on the subject is considered. For instance, in all the talk of rat fleas biting human beings, scarcely a mention has been made of *Pulex irritans* biting rats, though where this species is abundant this is a common occurrence. All theories must be examined, however improbable from every point of view, and thoroughly sifted, and then the workable residue may form a useful guide for the broadly planned and properly executed experimentation of the future—the only kind of work that will really count.

Surely here is a subject of prime importance calling loudly for systematic and thorough investigation. For after the years of work of specialists and commissions, the plague is still claiming its thousands, and is now on our own shores, and we have to make the fearful admission that the dread blight of leprosy has not only a firm foothold within the United States, but is rapidly spreading, as new localities become infected. It seems as if even the few considerations mentioned above indicated clearly and definitely abundant need for the following initiative lines of work :

I. *Extensive collecting of the fleas infesting rats, cats, dogs and especially human beings, in all parts of the world, but more particularly and thoroughly in all plague and leprosy-infested regions.* Of such prime importance does the writer consider this preliminary investigation that he recently offered to take all the risks incident to such work and prosecute it vigorously and thoroughly in all the worst plague and leprosy-infested regions. His somewhat extended experience in tropical field work and special knowledge of the subject seemed to justify and call for such an offer. Whether it will elicit any response remains to be seen. The striking need of the investigation can not be doubted.

II. *An extended and thorough systematic and anatomic study of the species as is now being carried on by the United States government in the case of mosquitoes.* The writer has had such work in progress at his personal expense for many years and has published a number of papers relating to it.

An invitation has been extended to medical men and others the world over to cooperate. This cooperation, while of the greatest importance, and indeed in default of any of the other support so much needed—of prime importance—can only be disconnected and very incomplete.

Residence in the tropics and in a leprosy center, together with the hearty cooperation of Dr. Howard, of Washington, Dr. Carter, of the University of Texas at Galveston, and others has made possible a good beginning by the writer. Indeed, an interesting result already to be noted is that one of the common rat fleas of the southern gulf ports is the same as the common species in Havana, and of the group of tropical rat fleas closely related to *pulex irritans*, and thus very likely to bite human beings when opportunity offers. An utter lack of extensive collections from human beings at any of these places makes useful, well-founded deductions on this point impossible. We hope to get these collections in some way. The simplicity of the apparatus needed (tweezers, small homœopathic vials of alcohol and several rat traps) should make extensive collections possible to all who are interested in the subject. Some have complained of the quick movement of the living insects, and the rapidity with which they desert dead animals, as a serious hindrance to the collecting. A little strong pyrethrum powder will remedy these difficulties. Scattered through the fur of an animal, it immediately disables the fleas and their expiring efforts serve to carry them out, to fall on white paper, where they may be readily and rapidly gathered. As large series as possible should be taken and full data as to locality, host, etc., should be inserted in every vial. A report will be returned for all specimens sent either to the writer or to Dr. Howard, Government Entomologist in Washington. D. C., U. S. A., and full published credit will later be given for every sending.—*Science.* "September 15, 1905.

Acknowledgments.

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